Ahfad University for Women
School of Health Sciences
Nutrition and Dietetic

Food & Nutrition Policy & Planning Reader

FROM POLICY CONCEPTS TO ADVOCACY — A COURSE READER FOR BSC NUTRITION & DIETETIC

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Ahfad University for Women

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"Education is the most powerful weapon which you can use to change the world." In the spirit of Ahfad, please use these materials to build a healthier future for Sudan.

Note on Instructional Design & Technology These materials were developed through a collaborative process between **Professor Osama Awad Salih** and **Claude (Anthropic AI)**.

- **Human-AI Collaboration:** While AI was utilized to assist with structural drafting, formatting, and the generation of case study simulations, all technical content, pedagogical objectives, and Sudan-specific contextualization have been rigorously reviewed, edited, and validated by Professor Osama Awad Salih.
- **Final Authority:** The Professor remains the final authority on all academic claims and policy interpretations contained within this Reader.

NUDT 414 | LECTURE 1

Food & Nutrition Policy

Concepts, Frameworks, Problem Definition & the Sudan Context

Food & Nutrition Policy Planning (NUDT 414) | 2 Credit Hours

Learning Outcomes

- **Define** food and nutrition policy and distinguish it from related concepts (food security, public health nutrition)
- **Describe** the three core **policy-making frameworks**: the Policy Cycle, Kingdon's Multiple Streams, and the WHO Policy Triangle
- **Explain** how nutrition problems are identified, framed, and placed on policy agendas
- **Identify** the major **actors** in food and nutrition policy systems and analyze their interests and power using **stakeholder mapping**
- **Analyze** Sudan's nutrition policy landscape, institutional architecture, and documented nutrition challenges using a policy systems lens
- **Apply** the **Policy Triangle** and Actor Mapping tools to a current Sudan nutrition problem

I. WHAT IS FOOD AND NUTRITION POLICY?

A. Definitions and Scope

Food and nutrition policy (FNP) refers to the set of deliberate decisions, laws, regulations, programs, and institutional arrangements made by governments and other actors to influence the production, distribution, access, and consumption of food, with the ultimate goal of improving population nutritional status and health outcomes.

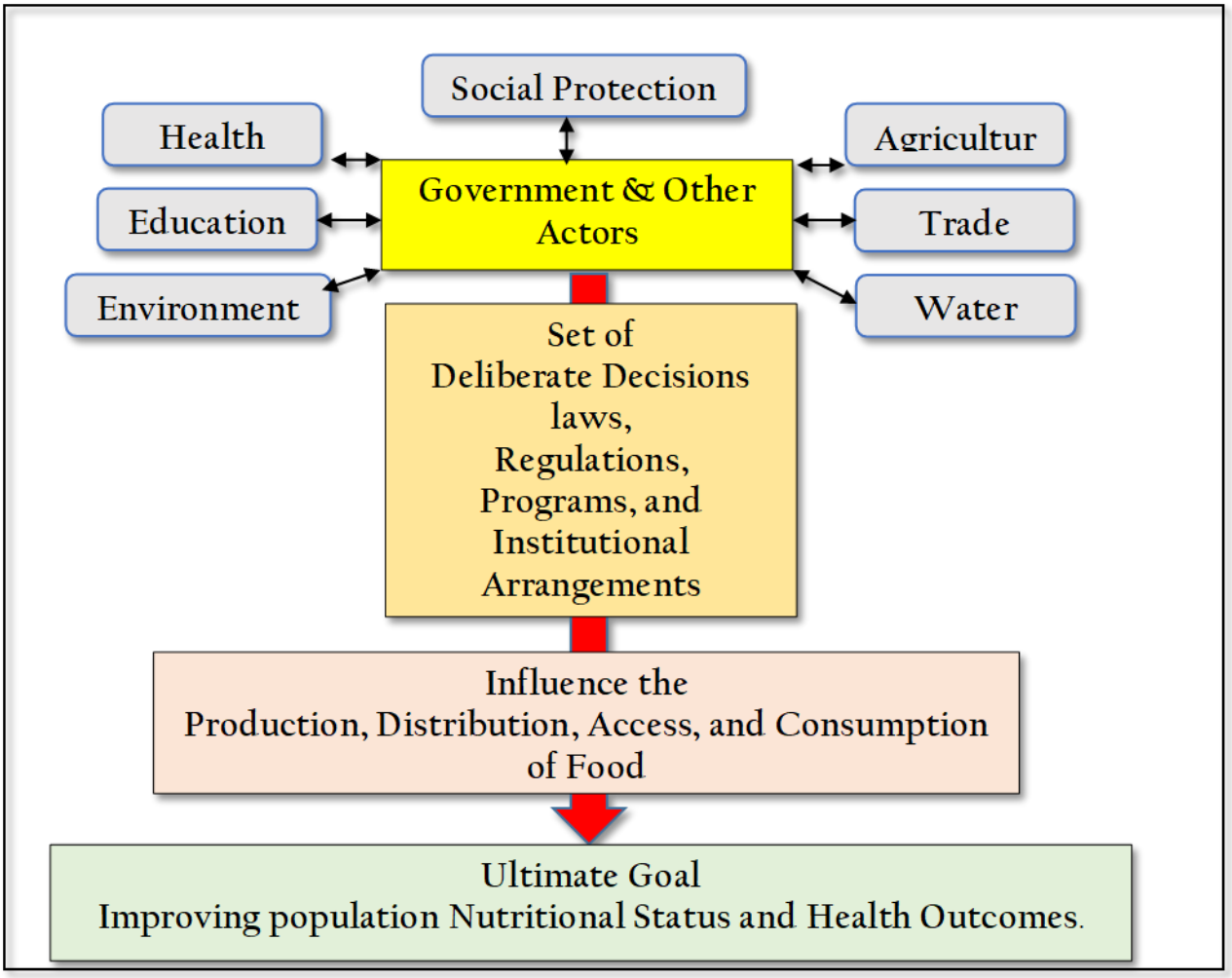
FNP is inherently multisectoral. It sits at the intersection of agriculture, health, education, social protection, trade, water, and environment. This multisectoral nature is its greatest strength (potential for comprehensive impact) and its greatest governance challenge (coordination failures are the norm, not the exception).

Concept	Definition & Key Distinction
Food & Nutrition Policy (FNP)	**Broadest scope**: all policies affecting dietary intake AND nutritional status — agriculture, trade, social protection, health systems, and education policies with nutritional implications
Food Security Policy	**Narrower**: ensuring physical, social, and economic access to sufficient safe nutritious food. Operationalized through FAO's 4 pillars: Availability, Access, Utilization, and Stability
Nutrition Policy (sensu stricto) in a strict sense	Policies specifically targeting nutrient intake, malnutrition prevention, and nutrition service delivery — e.g., micronutrient supplementation programs, IYCF policies
Public Health Nutrition	Application of nutrition science to promote and protect population health, the technical evidence base informing policy, not policy itself
Food Systems Policy	Most expansive frame: covers the entire system from inputs to waste, including sustainability. Preferred SDG-era framing for comprehensive policy analysis

Sudan Case Study: Sudan's Nutrition Policy Architecture

- Sudan's national nutrition policy is housed within the Federal Ministry of Health (FMoH) and operationalized through the National Nutrition Program (NNP), established 2006 and periodically revised
- The Multi-Sector Nutrition Plan (MSNP) is Sudan's cross-government framework addressing malnutrition through agriculture, health, WASH, education, and social protection, aligned with the Scaling Up Nutrition (SUN) Movement (Sudan joined 2012)
- Key institutional actors: FMoH, Federal Ministry of Agriculture, UNICEF (nutrition, IYCF), WFP (emergency food, school feeding), WHO, FAO, World Bank, and the SUN Civil Society Network Sudan
- The 2019 revolution and 2021 military coup severely disrupted governance continuity, pausing multi-year nutrition programs and freezing aid disbursements. A critical case of political instability undermining policy implementation
- Sudan's 25 states have devolved authority for health and nutrition, creating vast heterogeneity in implementation capacity between, for example, Khartoum state and North Darfur or Blue Nile states

Figure 1: Definitions and Scope



Developed by Prof. Osama A Salih

II. POLICY-MAKING FRAMEWORKS

A. The Policy Cycle

The policy cycle conceptualizes policy-making as a sequential, iterative (Repetitive) process. Real-world policy is rarely this linear, but the cycle provides an essential analytical support for understanding where in the process nutrition change is being attempted and where it is breaking down:

Stage	Description & Key Questions
1. Agenda Setting	How does a nutrition problem come to be recognized as requiring government action? Key drivers: epidemiological evidence, advocacy, crisis events, media attention, international commitments (WHA targets, SDGs)
2. Problem Definition & Analysis	Quantifying magnitude, distribution, and determinants of the nutrition problem — answering WHO is affected, HOW MUCH, WHERE, and WHY. This stage shapes which solutions are politically and technically considered
3. Policy Formulation	Developing options, modeling potential impacts and costs, consulting stakeholders, drafting legislation or program designs. Where technical and political dimensions intersect most visibly
4. Policy Adoption	Formal decision-making: legislation passing parliament, cabinet approval of programs, budget allocation. Requires political will and coalition-building among key power brokers
5. Implementation	Converting policy into action: building systems, training staff, delivering services. Where the largest gap between policy intent and actual outcomes most commonly emerges
6. Monitoring & Evaluation	Assessing process (was implementation as planned?) and impact (did nutritional outcomes improve?). Feeds evidence back to agenda-setting — completing the iterative cycle

B. Kingdon's Multiple Streams Framework

Kingdon (1984, updated 2011) argued that major policy change happens when three independent streams converge, creating a brief 'policy window' that must be seized by skilled policy entrepreneurs:

- **Problem Stream**: Evidence that a condition requires government action, nutrition surveys, economic cost studies, and focusing events (famines, disease outbreaks, international reports)
- **Policy Stream:** The pool of proposals and solutions generated by researchers, think tanks, and advocates. Solutions exist before problems; they float waiting for the right moment to attach to a recognized issue
- **Politics Stream**: The national mood, election cycles, government changes, and interest group pressures that create political receptivity to action. Government change, as in Sudan's 2019 revolution, can rapidly open or close windows
- **Policy Window + Entrepreneur**: When all three streams align, a window opens. Policy entrepreneurs invest time and relationships to couple the streams and push proposals through before the window closes

Sudan Context: *Sudan's 2019 revolution created a major policy window: the problems stream (chronic malnutrition, economic collapse) was documented; the policy stream contained ready proposals (SUN/MSNP framework); the politics stream shifted with a reform-minded transitional government. The window closed abruptly in October 2021 with the military coup — a textbook illustration of Kingdon's framework in a fragile state context.*

ملخص عربي

إطار كنغدون للتدفقات المتعددة

يرى كينجدون (1984، تم تحديثه 2011) أن التغيير الرئيسي في السياسات يحدث عندما تتلاقى ثلاثة تيارات مستقلة، مما يخلق "نافذة سياسة" قصيرة يجب أن يغتنمها رواد الأعمال المهرة في مجال السياسة:

- تيار المشكلة: الدليل على أن الحالة تتطلب إجراءً حكوميًا، ومسوحات التغذية، ودراسات التكلفة الاقتصادية، وتركيز الأحداث (المجاعات، وتفشي الأمراض، والتقارير الدولية)
- تيار السياسات: مجموعة المقترحات والحلول التي يقدمها الباحثون ومراكز الفكر والدعاة. الحلول موجودة قبل المشاكل؛ إنهم يطفوون في انتظار اللحظة المناسبة للتعلق بقضية معترف بها
- التيار السياسي: المزاج الوطني، والدورات الانتخابية، والتغييرات الحكومية، وضغوط مجموعات المصالح التي تخلق تقبلاً سياسياً للعمل. إن التغيير الحكومي، كما حدث في ثورة السودان عام 2019، يمكن أن يفتح أو يغلق النوافذ بسرعة

• نافذة السياسة + رجل الأعمال: عندما تتماشى جميع التدفقات الثلاثة، يتم فتح نافذة. يستثمر رواد الأعمال في مجال السياسات الوقت والعلاقات لربط التدفقات ودفع المقترحات قبل إغلاق النافذة

سياق السودان: *خلقت ثورة السودان عام 2019 نافذة سياسية رئيسية: تم توثيق تيار المشاكل (سوء التغذية المزمن، والانهيار الاقتصادي)؛ يحتوي مسار السياسات على مقترحات جاهزة (إطار SUN/MSNP)؛ وتحول التيار السياسي مع تشكيل حكومة انتقالية ذات توجهات إصلاحية. أُغلقت النافذة فجأة في أكتوبر/تشرين الأول 2021 مع الانقلاب العسكري، وهو مثال نموذجي لإطار كينغدون في سياق الدولة الهشة.*

C. The WHO Policy Triangle (Walt & Gilson, 1994)

The Health Policy Triangle emphasizes that policy is not simply a technical exercise. Effective policy analysis must examine four interacting elements simultaneously:

Triangle Element	Key Analytical Questions
Content	What does the policy say? What goals, targets, and instruments does it specify? Is the content evidence-based? Are there internal contradictions or implementation gaps in the document?
Context	What political, economic, social, and historical factors shaped this policy? Political system, governance quality, economic conditions, colonial legacy, donor dependency — all are part of context
Process	How was the policy developed? Who was consulted? Were affected communities included? What interests were represented or excluded? How was the policy communicated and legitimized?
Actors	Who are the key stakeholders? What are their interests and power? Who wins and who loses? How do international actors (UN, World Bank, donors) shape domestic policy space?

Policy Note: *The most common error in nutrition policy analysis is focusing only on CONTENT while ignoring context, process, and actors. A technically excellent policy with poor stakeholder engagement and weak implementation systems will consistently underperform a more modest policy that is politically owned and administratively feasible. Always analyze all four triangle elements together.*

ملاحظة هامة: *الخطأ الأكثر شيوعًا في تحليل سياسات التغذية هو التركيز على المحتوى فقط مع تجاهل السياق والعملية والجهات الفاعلة. إن السياسة الممتازة من الناحية الفنية والتي تتسم بمشاركة ضعيفة من جانب أصحاب المصلحة وأنظمة التنفيذ الضعيفة سوف تؤدي باستمرار إلى أداء أقل من السياسة الأكثر تواضعاً والتي تكون مملوكة سياسياً وممكنة إدارياً. قم دائمًا بتحليل عناصر المثلث الأربعة معًا*

III. NUTRITION PROBLEM IDENTIFICATION & THE SUDAN SITUATION

A. The Double Burden of Malnutrition in Sudan

Sudan faces the 'double burden of malnutrition': coexistence of undernutrition and rising overweight, sometimes in the same household. The most recent nationally representative data (MICS 2014) shows:

Malnutrition Form	Global Burden	Sudan Estimates (MICS 2014)
Stunting (HAZ ‹ -2 SD)	148 million children ‹ 5	38.6% of children under 5; ›50% in some Darfur states
Wasting (WHZ ‹ -2 SD)	45 million children ‹ 5	13.9% wasting; 2.2% severe acute malnutrition (SAM)
Anaemia	2 billion people globally	72% of children 6-59 months; 52% of women 15-49 years
Vitamin A deficiency	190 million preschool children	Subclinical deficiency widespread; supplementation campaigns ongoing
Iodine deficiency disorders	1.9 billion at risk	Universal salt iodization policy in place; implementation gaps persist in remote areas
Overweight / Obesity	2.5 billion adults overweight	30-35% of urban Sudanese women overweight or obese (WHO NCD country profiles)

Table 2. Summary of Malnutrition Indicators in Sudan (S3M II, National Level)

Malnutrition Indicator	National Prevalence	WHO Threshold	Severity Level
Stunting (Global, HAZ <-2)	38.2%	>30% = Very High	VERY HIGH
Wasting (Global, WHZ <-2)	16.3%	>15% = Critical	CRITICAL
Severe Wasting (SAM, MUAC <115mm)	4.2%	>2% = Serious	SERIOUS
Anemia (Children 6–59 months)	~65%	>40% = Severe PH	SEVERE PH
Vitamin A Deficiency (children)	~47%	>20% = Severe PH	SEVERE PH
Iodine Deficiency – Adequate Iodized Salt HH	~64% HH	>90% HH target	INSUFFICIENT
Child Overweight (WHZ >+2)	2.7%	Emerging concern	EMERGING
Maternal Undernutrition (MUAC <230mm)	~28%	>20% = High	HIGH

B. Applying the UNICEF Framework, Causes of Malnutrition in Sudan

Immediate Causes (Individual Level)

- **Inadequate dietary intake**: Heavy reliance on sorghum, millet, and bread; very low consumption of animal-source foods, fruits, and vegetables
- **High infectious disease burden**: Malaria, diarrhea, and acute respiratory infections drive wasting through anorexia, malabsorption, and nutrient losses, especially severe in already malnourished children
- **Poor infant and young child feeding**: Exclusive breastfeeding rate at 6 months ~41% (MICS 2014); Minimum Acceptable Diet met by fewer than 20% of 6-23 month infants

Underlying Causes (Household/Community Level)

- Chronic food insecurity: Recurrent drought, floods, locust infestations, and conflict-induced displacement creating repeated shocks to food availability and access
- Inadequate WASH infrastructure: Only ~57% access to improved sanitation nationally; open defecation drives environmental enteric dysfunction and nutrient malabsorption — a major driver of stunting
- Limited women's empowerment: Constrained decision-making over household food, healthcare, and child care resources limits mothers' ability to implement optimal feeding and care practices

Basic/Structural Causes (Societal Level)

- Decades of political instability and armed conflict; the 2023 RSF-SAF conflict represents the most acute rupture in an already chronically fragile governance system
- Economic collapse: >300% inflation 2021-2022; currency devaluation; loss of oil revenue post-South Sudan secession; 40% unemployment eroding household food purchasing power
- Climate vulnerability: Sudan is among the top 10 most climate-vulnerable countries globally, recurrent Sahel drought, Nile flooding, and desertification drive repeated agricultural failure

Sudan Case Study: Sudan's 2023-2024 Conflict & Famine Declaration

- **April 2023**: conflict between SAF and RSF created the world's largest internal displacement crisis , 8+ million internally displaced, 2+ million refugees by mid-2024
- **August 2024:** Famine (IPC Phase 5 / Catastrophe) declared in Zamzam IDP camp, North Darfur, the first famine declaration globally since Somalia 2011
- 25.6 million people (53% of Sudan's population) in IPC Phase 3+ by mid-2024,the highest figure ever recorded for Sudan
- **Agricultural production collapsed**: 2023 sorghum output ~46% below the 5-year average; farm inputs unavailable; livestock losses severe; market systems destroyed in conflict zones
- **Policy lesson:** Sudan's crisis demonstrates that policy documents without implementation capacity, political stability, and sustained financing have negligible protective effect when structural conditions collapse. Resilience investment before emergencies is the only effective strategy

IV. ACTOR MAPPING IN THE SUDAN NUTRITION POLICY SYSTEM

Actor Category	Examples in Sudan	Interests	Relative Power
Government — Federal	FMoH, Ministry of Agriculture, Ministry of Finance	Program ownership, budget control, political legitimacy	High implementation authority
UN System	UNICEF, WFP, WHO, FAO, UNFPA	Program delivery, technical assistance, humanitarian standards	Very High in fragile/emergency contexts
World Bank / IMF	World Bank Human Development; IDA lending	Economic reform, governance benchmarks, financing	Very High conditional financing
Bilateral Donors	USAID, UK FCDO, EU, GIZ	Aid effectiveness, political alignment, development objectives	High major funding source
International NGOs	Save the Children, ACF, IRC, MSF, Oxfam	Humanitarian response, community programming, advocacy	Moderate-High
National Civil Society	SUN CSN Sudan, Sudanese Red Crescent, U of Khartoum	Community voice, research, national advocacy	Moderate, constrained by funding
Private Sector	Food industry, agri-value chains, retail	Market access, profitability; fortification partner potential	Moderate, growing with urbanization
Affected Communities	Mothers, children, smallholders, pastoralists, IDPs	Food access, quality services, livelihood security	Low formal power; high moral authority

Sudan Context: *Sudan's political fragility means UNICEF and WFP have functionally replaced government as the primary nutrition delivery mechanism in many conflict-affected states — creating aid dependency that carries serious sustainability and ownership risks. Traditional and tribal leadership in Darfur and South Kordofan must be engaged as de facto actors even when they hold no formal policy role.*

Practical Activity: Actor Mapping Exercise

- Select ONE nutrition problem in Sudan (e.g., high stunting in Darfur; low EBF rates nationally; rising urban obesity in Khartoum)
- **Step 1**: List all relevant actors across government, UN, NGO, private sector, and community categories
- **Step 2**: For each actor assess: interest level (High/Medium/Low), position (Supportive/Neutral/Opposed), power level (High/Medium/Low)
- **Step 3**: Plot actors on a 2x2 Power-Interest Grid — Key Players (high power + high interest); Keep Satisfied (high power + low interest); Keep Informed (low power + high interest); Monitor (low power + low interest)
- **Step 4**: Identify critical alliances to build; potential opponents to manage; underrepresented voices to amplify
- **Deliverable**: A written actor map plus 300-word strategic analysis for a state Ministry of Health audience

Lecture Summary
● Food and nutrition policy is inherently multisectoral, no single ministry owns it, making coordination the central governance challenge
● **Three core frameworks**: Policy Cycle (6 stages agenda-setting through evaluation); Kingdon's Multiple Streams (3 streams converge at a policy window); WHO Policy Triangle (content + context + process + actors)
● Evidence alone is insufficient for agenda-setting, economic costing, political framing, and international commitments are equally critical for converting data into policy action ● **Sudan's double burden**: 38.6% stunting, 13.9% wasting, 72% anaemia in young children, plus rising urban overweight, driven by immediate, underlying, and structural causes spanning all levels of the UNICEF framework
● Actor mapping is the foundational practical tool, understanding who holds power, what they want, and how they relate to each other is prerequisite to effective advocacy and program design ● Sudan's 2023-2024 conflict and famine declaration is the most severe contemporary case study of how rapid governance failure transforms a chronic nutrition crisis into a catastrophic humanitarian emergency

Suggested Reading:

1. Walt G & Gilson L (1994). Health Policy Plan.
2. Kingdon JW (2003). Agendas, Alternatives and Public Policies, 2nd Ed.
3. UNICEF (2021). Revised Conceptual Framework on Causes of Child Malnutrition.
4. World Bank (2014). Cost of Hunger in Sudan.
5. IPC (2024). Sudan Acute Food Insecurity Situation Report.
6. FAO (2014). Second ICN Framework for Action.

SUDAN
El Obeid
Nuba Mountains
White Nile
Blue Nile
River
ETHIOPIAN

NUDT 414 | LECTURE 2

Quantitative Assessment of Nutrition Problems

Indicators, Surveys, IPC Classification, Burden of Disease & Economic Costing

Food & Nutrition Policy Planning (NUDT 414) | 2 Credit Hours

Learning Outcomes

- Select and apply appropriate nutrition indicators for assessing population nutritional status at different life stages
- Describe the SMART, DHS, and MICS survey methodologies and their design principles for policy use
- Apply the Integrated Food Security Phase Classification (IPC) framework to categorize food insecurity severity
- Calculate and interpret Disability-Adjusted Life Years (DALYs) and Population Attributable Fractions for nutrition-related conditions
- Use the Cost of Hunger methodology to estimate the economic burden of malnutrition and make investment cases
- Critically evaluate Sudan-specific quantitative nutrition data and identify surveillance gaps limiting evidence-based policy

I. NUTRITION INDICATORS — SELECTION AND INTERPRETATION

A. Why Indicators Matter for Policy

Nutrition indicators are the quantitative language through which nutrition problems are communicated to policy-makers, funders, and the public. The choice of indicator determines what gets measured, who gets counted, and ultimately what gets resourced. Good policy indicators must be: valid (measure what they claim), reliable (consistent across contexts), sensitive (detect true change), specific (measure the right condition), and actionable (feasible to collect and respond to with intervention).

B. Anthropometric Indicators for Children Under Five

Anthropometry is the most widely used approach to assessing child nutritional status و it is non-invasive, inexpensive, and sensitive to nutritional change. All child anthropometric indicators are expressed as *z*-scores relative to the WHO 2006 Child Growth Standards, a prescriptive reference derived from healthy, well-nourished children across six countries:

Indicator	What It Measures	Key Thresholds	Primary Policy Use
Height-for-Age Z-score (HAZ) Stunting	Chronic/cumulative undernutrition reflecting the first 1,000 days and beyond	‹ -2 SD = stunted ‹ -3 SD = severely stunted	Long-term food security, WASH, IYCF programming; WHA Target: 40% reduction in stunting by 2025
Weight-for-Height Z-score (WHZ) Wasting	Acute undernutrition, current food shortage or acute illness	WHZ ‹ -2 SD = wasted WHZ ‹ -3 SD = SAM MUAC ‹ 115mm = SAM	Emergency response trigger; CMAM program admission criteria; emergency threshold GAM ›15%
Weight-for-Age Z-score (WAZ) Underweight	Composite of stunting and wasting, less specific than HAZ or WHZ alone	‹ -2 SD = underweight ‹ -3 SD = severely underweight	MDG/SDG monitoring; broad program tracking; less diagnostic than HAZ or WHZ separately
MUAC (Mid-Upper Arm Circumference) Children 6-59 months	Proxy for muscle mass and acute nutritional status; strong predictor of mortality	‹ 115mm = SAM 115-125mm = MAM › 125mm = normal	Community-based screening; highly predictive of mortality; WHO/UNICEF recommended for CMAM admission

C. Indicators for Other Population Groups

Group	Key Indicators	Critical Thresholds and Policy Application
Women of reproductive age (15-49 years)	BMI; MUAC (pregnancy); Haemoglobin (g/dL); Low Birth Weight rate (<2,500g)	BMI <18.5 = underweight (elevated obstetric risk); Hb <11 g/dL in pregnancy = anaemia; Anaemia prevalence >40% = severe public health problem (WHO)
Infants 0-23 months (First 1,000 Days)	Exclusive breastfeeding rate (EBF 0-6m); Minimum Acceptable Diet (MAD); Minimum Dietary Diversity (MDD); Minimum Meal Frequency (MMF)	EBF <50% = below WHA 2025 target; MAD <25% = very low quality; all three required together for MAD — the most sensitive composite infant feeding indicator
Population food security	Household Dietary Diversity Score (HDDS); Food Consumption Score (FCS-WFP); Household Food Insecurity Access Scale (HFIAS); Food Insecurity Experience Scale (FIES-FAO, SDG 2.1 indicator)	HDDS <4 food groups = low dietary diversity; FCS <28 = poor food consumption (WFP emergency response threshold)
Elderly and special populations	Mini Nutritional Assessment (MNA); BMI (<22 = risk in elderly); Grip strength; Calf circumference	MNA <17 = malnourished; MNA 17-23.5 = at risk; Increasingly relevant as Sudan's urban population ages and NCD burden rises

Sudan Case Study: Key Sudan Nutrition Data — MICS 2014 and SMART Surveys

- MICS 2014 (most recent national data): Stunting 38.6%; Wasting 13.9%; SAM 2.2%; Underweight 33%; EBF rate 41.2%; Minimum Acceptable Diet (MAD) <20% in 6-23 month infants
- Anaemia (MICS 2014): 72% of children 6-59 months and 52% of women 15-49 years, both classified as 'severe public health problem' (WHO threshold >40%)
- SMART surveys 2022-2023 in conflict-affected states: Wasting 20-35% and SAM 4-8% in children under 5 — far exceeding emergency thresholds (GAM >15%, SAM >2%)
- Critical data gap: No nationally representative nutrition survey has been completed since 2014, a 10+ year gap. The 2023 conflict has made large-scale surveys impossible in many states. Policy decisions are being made on the basis of highly localized SMART surveys with limited generalizability
- Policy implication: Data gaps are themselves a policy problem. When evidence is absent, advocacy defaults to advocacy without a strong quantitative foundation, weakening both humanitarian appeals and long-term program investment cases

II. NUTRITION SURVEY METHODOLOGIES

A. SMART Methodology, Standardized Monitoring and Assessment of Relief and Transitions

SMART is the global standard for assessing acute malnutrition in humanitarian emergencies. It uses probability-based cluster sampling to generate representative estimates of child anthropometric status and crude mortality rates with known precision:

- **Sampling design**: Two-stage cluster sampling. Stage 1: probability-proportional-to-size (PPS) selection of clusters (villages/communities). Stage 2: random household selection within clusters. Standard sample: 30 clusters x 25-35 children = 900+ children for 95% confidence intervals at acceptable precision
- **Anthropometric measurement protocol**: Height/length measured with UNICEF measuring boards; weight with calibrated scales; MUAC with non-stretch tapes. All key measurements taken twice; re-measured if discrepancy exceeds 0.5cm or 100g. Systematic recording on standardized forms
- **Mortality component**: Household recall of births and deaths over a defined reference period (typically 75-90 days). Calculates Crude Death Rate (CDR) and Under-5 Death Rate (U5DR). Emergency thresholds: CDR >1/10,000/day; U5DR >2/10,000/day
- **ENA for SMART software**: Mandatory plausibility checks assess digit preference, sex ratio, age ratio, z-score standard deviation, and percentage of biologically implausible values. Plausibility score >25 = inadequate quality; results require cautious interpretation or rejection

Policy Note: *SMART surveys in Sudan frequently encounter: enumerator training challenges in remote locations, insecurity restricting access to key areas, population movement (IDP camps with fluid populations), and false age reporting (birth registration is incomplete). These issues must be transparently reported alongside results — a plausibility-failed survey should never be used uncritically for emergency funding decisions.*

B. Demographic and Health Surveys (DHS) and MICS

DHS and MICS are the primary sources of nationally representative, trend-comparable nutrition data in low- and middle-income countries:

Feature	DHS (USAID-funded)	MICS (UNICEF-funded)
Frequency	Every 4-5 years	Every 4-5 years
Sample size	5,000-30,000 households	Varies; often 10,000-30,000 households
Nutrition data	Child anthropometry; breastfeeding; IYCF; women's BMI; anaemia (haemoglobin); vitamin A supplementation coverage	Same as DHS; often combined in some country contexts
Strengths	Long time series (since 1984); high methodological standardization; comparable across 90+ countries	Strong IYCF module; WASH indicators; child development; flexible country adaptation
Sudan status	No recent DHS; last reliable national data from MICS 2014	MICS 2014 is the current national reference, planned new cycle delayed by political instability

III. INTEGRATED FOOD SECURITY PHASE CLASSIFICATION (IPC)

A. The IPC Framework — Structure and Use

The IPC is a global multi-partner framework that classifies the severity and magnitude of acute food insecurity and malnutrition situations. It provides a standardized evidence-based 5-phase scale used by governments, donors, and humanitarian actors to prioritize response and trigger funding mechanisms:

IPC Phase	Classification	Key Criteria — Food Consumption & Malnutrition	Sudan Application 2024
Phase 1	**Minimal**	Households meet basic food needs without atypical coping. GAM <5%. CDR <0.2/10,000/day	Parts of eastern Sudan, River Nile state
Phase 2	**Stressed**	Minimally adequate food but unable to sustain without atypical coping strategies. GAM 5-10%. CDR 0.2-0.5/10,000/day	Some areas of central and northern Sudan
Phase 3	**Crisis**	Food consumption gaps causing acute malnutrition OR only sustainable with crisis coping strategies. GAM 10-15% or SAM >2%. CDR 0.5-1/10,000/day	Widespread across many non-conflict states
Phase 4	**Emergency**	Extreme food gaps, very high acute malnutrition and excess mortality. GAM >15% or SAM >2% with aggravating factors. CDR 1-2/10,000/day	Khartoum, South Darfur, West Darfur, North Kordofan
Phase 5	**Catastrophe/Famine**	Starvation and death evident even with any available assistance. Famine criteria: >=20% households in extreme gaps, GAM >30%, CDR >2/10,000/day	Zamzam IDP camp, North Darfur (declared Famine Aug 2024); 8 additional localities IPC5

Sudan Case Study: Sudan IPC Analysis 2024 — Policy Consequences

- May-September 2024 IPC analysis: 25.6 million people (53% of Sudan's population) in IPC Phase 3 or above, the highest number of acutely food insecure people ever recorded for Sudan
- Famine (IPC Phase 5) declared in Zamzam IDP camp, North Darfur, August 2024, affecting over 500,000 displaced people with documented starvation deaths. First famine declaration globally since Somalia 2011
- The IPC famine declaration directly triggered: emergency donor pledging conferences; UN Security Council discussions; pressure on parties to the conflict to allow humanitarian access; mobilization of emergency funding instruments (CERF, donor bilateral emergency transfers)
- IPC Phase classification is not merely descriptive, it is a legal and operational trigger. Governments and donors have committed to specific response obligations at each IPC phase through humanitarian architecture agreements
- Methodological challenge: IPC analysis in Sudan 2023-2024 was conducted with severely incomplete data, many conflict-affected areas had no surveys. IPC used 'expert consensus' gap-filling. This transparency about evidence quality is essential for credible policy use of IPC findings

IV. BURDEN OF DISEASE — QUANTIFYING NUTRITION'S HEALTH IMPACT

A. Disability-Adjusted Life Years (DALYs)

The **DALY** is the standard metric for quantifying disease burden in a way that enables comparison across conditions and supports evidence-based budget allocation. It combines premature death and years lived with disability into a single number:

DALY = Years of Life Lost (YLL) + Years Lived with Disability (YLD)

- **YLL** = Number of deaths x Standard life expectancy at age of death (Global Burden of Disease standard life table: life expectancy at birth = 86.0 years for the reference population)
- **YLD** = Number of incident cases x Duration of disease x Disability weight (ranging from 0 = perfect health to 1 = death equivalent; derived from population surveys of health state valuations)

Nutrition-Related Condition	Global DALYs Lost (GBD 2019)	Sudan Policy Significance
Child wasting and underweight	~25 million DALYs/year	Primary driver of child mortality; each percentage point reduction in SAM prevalence translates to measurable under-5 mortality reduction
Iron deficiency anaemia	~35 million DALYs/year	Highest micronutrient DALY burden globally; impairs cognitive development, educational outcomes, work productivity, and maternal health
Vitamin A deficiency	~5 million DALYs/year	Leading cause of preventable childhood blindness; amplifies mortality from infectious diseases — particularly measles and diarrhoea
Stunting (including cognitive effects)	~35 million DALYs/year	Irreversible after age 2; lifetime productivity loss estimated at 10% of lifetime earnings per stunted individual
Dietary risks combined	~255 million DALYs/year	The single largest modifiable risk factor for global disease burden, surpassing tobacco, high blood pressure, and high fasting plasma glucose

B. Population Attributable Fraction (PAF), Linking Nutrition to Disease Burden

The PAF estimates what proportion of a health outcome is attributable to a specific nutritional risk factor at the population level. It is the core quantitative method for establishing the causal contribution of malnutrition to disease burden and justifying policy investment:

Formula: $PAF = Pe \times (RR - 1) / [Pe \times (RR - 1) + 1]$

Where:

Pe = prevalence of exposure (nutritional risk factor) in the population;

RR = relative risk of the health outcome given exposure versus unexposed

Applied Sudan example: If 39% of children under 5 are stunted (Pe = 0.39), and stunted children have 2.5 times the risk of dying from diarrhoeal disease compared to non-stunted children (RR = 2.5), then:

PAF = 0.39 x (2.5 - 1) / [0.39 x (2.5 - 1) + 1] = 0.585 / 1.585 = 0.369

Interpretation: Approximately 37% of diarrhoeal deaths in Sudanese children under 5 are attributable to stunting. Eliminating stunting would reduce diarrhoeal mortality by 37%. This type of calculation is the quantitative foundation of investment cases for nutrition programs and is used directly in the Cost of Hunger methodology.

Policy Note: *PAF calculations require two inputs that are frequently uncertain in data-poor settings like Sudan: (1) accurate exposure prevalence from valid surveys, and (2) reliable relative risk estimates from epidemiological studies, which may not be Sudan-specific. Sensitivity analyses using ranges of both inputs are essential to assess the robustness of burden estimates used in policy advocacy.*

V. ECONOMIC COSTING OF MALNUTRITION

A. The Cost of Hunger Methodology

The 'Cost of Hunger in Africa' (COHA) methodology, developed by the African Union Commission, NEPAD, WFP, and UN Economic Commission for Africa, estimates the annual economic cost of child undernutrition to national economies. It has been applied in 12 African countries including Sudan (2014):

Cost Category	Methodology	Sudan COHA 2014 Estimate
Lost productivity from stunting	Stunted adults earn 5-10% less per year (reduced cognitive capacity, lower schooling, shorter stature). Estimate the productive-age workforce with stunting-attributable impairment	Estimated 4.8 million working-age adults with stunting-attributable cognitive and physical impairment
Lost productivity from child mortality	DALYs from nutrition-attributable child deaths valued at per-capita Gross National Income (GNI). Premature death of a productive future adult = major economic loss	Nutrition-attributable under-5 mortality: estimated 55,000-65,000 additional deaths per year vs. no malnutrition scenario
Increased healthcare costs	Malnourished children have higher rates of diarrhoea, pneumonia, and malaria requiring health system utilization. Direct treatment cost per SAM case in CMAM: USD 150-200	Estimated annual additional public health expenditure attributable to malnutrition: USD 300-400 million
Lost educational achievement	Stunted children are more likely to repeat school grades and drop out earlier — estimated 0.5-0.7 fewer years of schooling on average, reducing lifetime human capital	Educational loss valued at foregone lifetime earnings, a substantial component of the total economic cost
Total annual economic cost	Sum of all categories as percentage of GDP	Approximately USD 1.9 billion per year = 2.3% of Sudan's GDP (2014 estimate)

B. Return on Investment for Nutrition Interventions

Investment case analyses consistently find nutrition interventions among the highest-return investments in development. These figures are critical tools for engaging finance ministries — framing nutrition as economic investment, not only humanitarian obligation:

Intervention	Benefit-Cost Ratio	Evidence Source
Promotion and support for breastfeeding	~35:1	Victora et al. Lancet Breastfeeding Series 2016; Alive & Thrive
Therapeutic feeding for SAM (CMAM)	~25:1	Collins et al.; Shekar et al. World Bank Investment Framework 2016
Stunting-focused community nutrition programs	~18:1	Bhutta et al. Lancet 2013; Copenhagen Consensus 2012
Vitamin A supplementation (children 6-59 months)	~9-38:1	Imdad et al. Cochrane Review; Copenhagen Consensus 2012
Iron-folic acid supplementation in pregnancy	~12:1	Shekar et al. World Bank 2016
Multiple micronutrient supplementation (MMS) in pregnancy	~8:1	Alive & Thrive; Shekar et al. 2016

Sudan Context: *Sudan's COHA finding (2.3% of GDP) means that every Sudanese pound invested in proven nutrition interventions, such as CMAM, vitamin A supplementation, and IYCF promotion, can generate returns of 8 to 35 Sudanese pounds in economic value through reduced mortality, improved productivity, lower healthcare costs, and higher educational attainment. This framing has been used to advocate for nutrition budget lines in Sudan's federal budget, with limited success due to competing fiscal pressures and political instability.*

VI. NUTRITION SURVEILLANCE SYSTEMS IN SUDAN

A. Components and Current Status

Surveillance Component	Ideal Function	Status in Sudan
Civil registration (births and deaths)	Provides denominator for mortality rate calculation and trends over time	Very weak, large proportion of births and deaths not registered, particularly in rural and conflict-affected areas. Mortality estimation is highly uncertain
Health Management Information System (HMIS)	Continuous facility-based data on nutrition service utilization — CMAM admissions, ANC coverage, vitamin A supplementation	Exists at federal and state level but major gaps: under-reporting, late reporting, data quality issues. Conflict has destroyed many health facilities, data completely suspended in conflict zones
CMAM program data	Monthly reporting of SAM admissions, cures, defaults, and deaths from therapeutic feeding centers	Most reliable real-time program data available; but suffers selection bias, only captures those who present to facilities, missing community-level burden
SMART surveys (periodic)	Periodic representative estimates of acute malnutrition and mortality rates	Most reliable source of acute malnutrition data; but only covers accessible areas, conflict zones inaccessible to survey teams since April 2023

Food price monitoring (WFP)	Early warning of purchasing power collapse, key predictor of food insecurity deterioration	WFP monitors prices in 18 markets; severely disrupted by market system destruction in conflict areas
FEWS NET / IPC early warning	Predictive analysis combining nutrition, food security, rainfall, and market data	Operational; provided critical early warning of 2023-2024 famine conditions; constrained by the same data quality issues affecting all other systems

Policy Note: *Sudan's surveillance system failure is a policy problem in its own right. Without reliable, timely data, humanitarian actors cannot demonstrate need with confidence, program managers cannot identify deteriorating pockets before they become crises, and governments cannot be held accountable for nutrition outcomes. Investing in national nutrition surveillance infrastructure, even during conflict, through community-based sentinel systems, is a policy priority that the post-conflict recovery agenda must address explicitly.*

Practical Activity: Practical Exercise — Interpreting a SMART Survey Report
● Access a recent Sudan SMART survey report from the UNICEF Sudan website or ReliefWeb (select a conflict-affected state, 2022 or 2023)
● **Step 1.** Survey design: Identify the target population, geographic coverage, sampling methodology, and reference period. Is this survey representative of the state, or only accessible areas? ● **Step 2.** Key findings: Record GAM (WHZ and MUAC), SAM, stunting, underweight, and crude mortality rates with their 95% confidence intervals. Note the sample size and precision ● **Step 3.** Plausibility check: Review the ENA plausibility score. What is the overall rating (Excellent/Good/Acceptable/Problematic)? Are individual flags raised? What are the implications for confidence in results?
● **Step 4.** IPC comparison: At which IPC Phase does this survey's GAM/SAM/mortality data place the population? Has the situation changed since the previous survey in this location?
● **Step 5.** Policy brief: Write a 400-word policy brief translating the technical findings into actionable recommendations for a state Ministry of Health audience with limited statistical background. Include one specific program recommendation justified by the data

Lecture Summary
● Indicator selection determines what gets measured and what gets funded, HAZ (stunting: chronic), WHZ/MUAC (wasting/acute), Hb. (anaemia), EBF rate and MAD (infant feeding quality) are the core policy-relevant indicators for Sudan's context ● SMART methodology: 30-cluster probability sampling with ENA plausibility checks, the emergency field standard. Sudan emergency thresholds: GAM >15% or SAM >2%. Plausibility failures must be reported transparently ● IPC Phase Classification: 5-phase framework from Minimal to Famine. Sudan August 2024: IPC Phase 5 Famine declared in Zamzam, 25.6 million in IPC Phase 3+. IPC classification directly triggers humanitarian funding obligations ● DALYs = YLL + YLD, allow malnutrition to compete quantitatively for budget allocations against other health priorities. Dietary risks contribute 255 million DALYs globally, the single largest modifiable risk factor ● PAF methodology: quantifies the proportion of a disease outcome attributable to a nutritional risk factor. Applied to Sudan: ~37% of diarrhoeal deaths in under-5s attributable to stunting, the quantitative foundation of investment cases
● Cost of Hunger: malnutrition costs Sudan ~2.3% of GDP annually (USD 1.9 billion). ROI for proven nutrition interventions: 8:1 to 35:1. Sudan's data gap since 2014 is itself a critical policy problem requiring urgent post-conflict surveillance investment

Suggested Reading:

1. WHO/UNICEF (2019). SMART Methodology Manual v2. |
2. IPC Global Partners (2021). IPC Technical Manual v3.1. |
3. Black RE et al. (2013). Maternal and child undernutrition and overweight in LMICs. Lancet 382:427-451.
4. Shekar M et al. (2016). An Investment Framework for Nutrition. World Bank. |
5. AU/NEPAD/WFP (2014). The Cost of Hunger in Sudan. | GBD 2019 Risk Factors Collaborators (2020). Lancet 396:1223-1249.

SUDAN
El Obeid
Nuba Mountains
White Nile
Blue Nile
River
ETHIOPIAN

NUDT 414 | LECTURE 3

Nutrition Policy Design & Planning Tools

Logical Frameworks, Theory of Change, Program Costing & the National Nutrition Plan

Food & Nutrition Policy Planning (NUDT 414) | 2 Credit Hours

Learning Outcomes

- Distinguish nutrition policy from nutrition programs and explain the planning hierarchy from policy to activities
- Construct a Theory of Change (ToC) for a nutrition intervention, identifying assumptions and risks at each causal step
- Develop a Logical Framework (LogFrame) for a nutrition program with appropriate indicators, means of verification, and assumptions
- Apply the Optima Nutrition and LiST tools conceptually to model the impact and cost-effectiveness of nutrition interventions
- Describe the structure and content of a National Nutrition Plan (NNP) and evaluate Sudan's NNP against international standards
- Use program costing methods to estimate the resource requirements for a nutrition intervention at scale

I. FROM POLICY TO ACTION — THE PLANNING HIERARCHY

A. The Policy-to-Program Continuum

A common source of confusion in nutrition governance is the relationship between policies, strategies, plans, and programs. These are not interchangeable terms, they represent a hierarchical chain from broad intent to specific action, and gaps between any two levels undermine implementation:

Level	Definition	Sudan Example
Policy	A high-level statement of intent, values, and priorities that guides decision-making. Sets the 'what' and 'why'. Typically approved at ministerial or cabinet level	National Nutrition Policy (FMoH): commits Sudan to reducing stunting, wasting, and micronutrient deficiency; promotes IYCF; establishes the right to adequate nutrition
Strategy	Defines the broad approach and strategic directions for achieving policy goals. Sets the 'how in principle'. Identifies priority interventions and target populations	Multi-Sector Nutrition Plan (MSNP): strategic directions for health, agriculture, WASH, education, and social protection contributions to nutrition outcomes
Plan / Program	Translates strategy into a costed, time-bound set of activities, outputs, and outcomes with assigned responsibilities. Sets the 'who does what, by when, with what resources'	National Nutrition Program (NNP): annual and multi-year operational plans with budgets, targets by state, responsible departments, and M&E frameworks
Project	A bounded, time-limited intervention implemented by a specific organization with defined funding. Most granular operational level	UNICEF-funded CMAM scale-up in North Kordofan 2022-2024; WFP school feeding program in Blue Nile state; USAID-funded stunting prevention project in Kassala
Activities	The specific actions carried out within a project to produce outputs	Training of community nutrition volunteers; distribution of RUTF; growth monitoring and promotion sessions; community IYCF counselling visits

Policy Note: *The most common planning failure in LMICs is the 'missing middle' — strong policy documents and donor-funded projects operating in parallel, with no coherent national plan connecting them. This is precisely Sudan's situation: an NNP document exists, but no coherent costed national plan connects policy commitments to the hundreds of fragmented NGO and UN projects operating across states.*

II. THEORY OF CHANGE (ToC)

A. What is a Theory of Change?

A Theory of Change is a systematic description of the causal pathway through which a set of inputs and activities are expected to lead to desired long-term outcomes. It makes explicit the assumptions about how and why change will happen, and where the intervention could fail. A well-constructed ToC is the foundation of any credible nutrition program design:

ToC Component	Definition	Example — Community IYCF Program in Sudan
Problem Statement	The specific nutrition problem the intervention addresses, with quantitative scope	MAD met by only 18% of 6-23 month infants in target state; stunting prevalence 42%; driven partly by poor complementary feeding practices
Inputs	Resources invested: human, financial, material, technical	Trained nutrition community volunteers; IYCF counselling materials in Arabic and local dialects; supervisors; M&E system; 3-year project budget USD 2.1 million
Activities	Actions taken with inputs to produce outputs	Train 400 community nutrition volunteers (CNVs); monthly home visits by CNVs to mothers of 0-23 month children; community cooking demonstrations; growth monitoring and promotion (GMP) sessions
Outputs	Direct products of activities — what is delivered	400 CNVs trained and deployed; 12,000 household IYCF counselling visits/year; 48 cooking demonstrations/year; 8,000 children weighed monthly
Outcomes (short/medium)	Changes in knowledge, practices, or service utilization resulting from outputs	Increased maternal knowledge of IYCF; improved dietary diversity of 6-23 month children; increased EBF rates; increased MAD from 18% to 35% (3-year target)
Impact (long-term)	Changes in nutritional status and health resulting from sustained outcome changes	Reduction in stunting prevalence by 8 percentage points over 5 years; reduced anaemia prevalence; reduced child mortality
Assumptions	What must be true for each causal step to hold	Mothers have agency to change feeding practices; food is available and affordable; no displacement events disrupt program; community accepts CNV role

B. Why Assumptions Matter — Especially in Sudan

The assumptions embedded in a Theory of Change are where most nutrition programs fail in fragile and conflict-affected states. Making assumptions explicit forces program designers to confront risks that would otherwise remain hidden:

- Assumption: 'Mothers will apply knowledge gained from IYCF counselling.' Risk: Women's autonomy over household food decisions is constrained; husbands or mothers-in-law may control food allocation regardless of IYCF knowledge. Mitigation: Include men and extended family in counselling; engage community leaders
- Assumption: 'Adequate complementary foods will be available.' Risk: Conflict disrupts food markets and agricultural production; family food insecurity means complementary foods are unaffordable even if mothers know what to feed. Mitigation: Link IYCF programming with food vouchers or cash transfers; integrate with food security programming
- Assumption: 'Community nutrition volunteers will remain in post.' Risk: Displacement, insecurity, or lack of financial incentive causes rapid attrition of trained volunteers. Mitigation: Design incentive structures; train larger numbers; create community ownership
- Assumption: 'No major displacement events will occur.' Risk: Recurrent conflict and displacement in Sudan, this assumption is almost never safe. Mitigation: Build mobile delivery models; work with IDP camp management committees; design for disruption

Sudan Context: *Sudan's experience repeatedly shows that ToC assumptions which hold in stable contexts fail catastrophically in conflict settings. The 2019 MSNP assumed government implementation capacity across all 25 states, an assumption invalidated by the 2021 coup and 2023 conflict. Nutrition program designers in Sudan must treat political stability as a variable risk, not a given, and build explicit contingency pathways into their ToC.*

III. LOGICAL FRAMEWORK (LOGFRAME)

A. The LogFrame Matrix Structure

The Logical Framework (LogFrame) is the most widely used program planning and management tool in international development. It operationalizes the Theory of Change into a structured 4x4 matrix linking objectives to indicators, means of verification, and assumptions. It is required by virtually all major donors (USAID, EU, DFID, World Bank) for project approval:

LogFrame Row	Description	Specification Requirements
Goal (Impact)	The long-term development objective to which the program contributes, but does not fully control. Typically a population-level nutrition or health indicator	Quantified national or subnational target; time-bound; aligned with WHA targets or national NNP targets. Example: Reduce stunting in Kassala state from 42% to 32% by 2028
Purpose (Outcome)	The specific change in behavior, service use, or conditions that the program is designed to achieve, what the project should accomplish	SMART outcome indicator with baseline and target; means of verification specified. Example: Increase MAD among 6-23 month children in target communities from 18% to 38% by end of year 3
Outputs	The concrete deliverables produced by the program, what is produced or delivered	Quantified output targets with timeframe; verified through project MIS and activity reports. Example: 400 CNVs trained; 12,000 household visits completed/year; 8,000 children reached monthly by GMP
Activities	The specific tasks carried out to produce outputs, with associated inputs and costs	Activity schedule (Gantt chart); budget line items; responsible party; input requirements specified in procurement plan

LogFrame: National Maternal and Child Nutrition Program

Narrative Summary (Objectives)	Performance Indicators	Means of Verification	Risks & Assumptions
Goal (Impact): To improve the long-term nutritional status of children under 5 in target regions.	Prevalence of stunting (height-for-age) decreased by **10%** over 5 years.	National Health and Demographic Survey (DHS) reports.	**Assumption:** Political stability remains constant and food prices do not spike.
Outcome (Specific Objective): Increased adoption of Exclusive Breastfeeding (EBF) and improved complementary feeding practices.	**70%** of mothers in target districts practicing EBF for the first 6 months.	Hospital discharge records; Community health worker surveys.	**Assumption:** Cultural leaders support the promotion of EBF over breast-milk substitutes.
Outputs: 1. Healthcare staff trained in nutrition counseling. 2. Nutrition education campaigns launched.	1. **500** frontline workers certified. 2. **3** monthly radio spots aired in local languages.	Training attendance logs; Media broadcast logs and contracts.	**Risk:** High turnover of trained healthcare staff moving to private sectors.
Activities: 1. Conduct "Train the Trainer" workshops. 2. Produce and distribute BCC (Behavior Change Communication) materials.	1. Budget spent on workshops ($50k). 2. **10,000** brochures printed and distributed.	Financial audit reports; Delivery waybills/receipts.	**Assumption:** Supplies and materials are delivered to rural clinics on schedule.

How to Read the Matrix

- **Vertical Logic:** If we provide the **Activities**, then we will deliver the **Outputs**. If we deliver the Outputs, then the **Outcome** should occur. If the Outcome occurs, we contribute to the long-term **Goal**.
- **Horizontal Logic:** For every objective, we define how to measure success (**Indicators**), where we will get the data (**Means of Verification**), and what external factors might stop us (**Assumptions/Risks**).

A Note on "Means of Verification": In nutrition policy, this is the most critical column. It prevents "guessing" by forcing the project to identify exactly which survey or database will prove the numbers are real.

B. SMART Indicators in the LogFrame

Every objective level in the LogFrame requires indicators that are SMART: Specific, Measurable, Achievable, Relevant, and Time-bound. Poor indicator selection is one of the most common causes of ineffective program monitoring:

Indicator Quality Issue	Poor Example	Improved SMART Version
Too vague, not measurable	Improved nutrition status among children	Stunting prevalence (HAZ < -2 SD) among children 6-59 months in 5 target localities, measured by anthropometric survey at baseline (2024) and endline (2027)
No baseline — not measurable	Increased breastfeeding rates	Exclusive breastfeeding rate (EBF) among infants 0-5 months in intervention communities increases from 38% (2024 baseline, n=350) to 55% (2027 target)
No timeframe — not time-bound	Reduction in SAM cases	Number of children 6-59 months admitted with SAM to CMAM program per quarter in North Darfur decreases from 2,400 Q1 2025 to 1,500 Q1 2027
Not attributable to program	Decrease in child mortality rate	Percentage of mothers in program communities who correctly demonstrate preparation of appropriate complementary food for their 6-12 month infant (knowledge + practice assessment)
Measuring output not outcome	Number of health workers trained	Percentage of trained community nutrition volunteers who conducted 4+ home visits in the previous month (performance not just training completion)

C. Means of Verification (MoV)

For every indicator, the LogFrame must specify exactly how and from where the data will be collected. Specifying MoV forces planners to confront whether the required data systems exist — and to budget for them if they do not:

- **Household survey (baseline/endline):** Required for outcome-level anthropometric indicators (stunting, MAD). Must specify: sample size calculation; sampling design; trained enumerators; standardized protocols; analysis plan. Cost: typically, USD 40,000-120,000 depending on scale
- **Program MIS (Management Information System):** For output-level data, number of children screened, CNV visits conducted, RUTF distributed. Must be standardized, regularly submitted, and verified against physical records
- **Routine health facility data (HMIS):** For service utilization indicators, ANC attendance, CMAM admission rates, vaccination coverage. Quality depends entirely on HMIS completeness and accuracy, a major weakness in Sudan
- **SMART survey (for acute malnutrition):** Required for wasting prevalence indicators. Follows SMART methodology; must be budgeted and planned into program timeline at baseline, midline, and endline

IV. PROGRAM COSTING — ESTIMATING RESOURCE REQUIREMENTS

A. Approaches to Nutrition Program Costing

Program costing estimates the total resources required to deliver a nutrition intervention at a specified scale. It is essential for budget advocacy, donor proposals, government budget submissions, and cost-effectiveness analysis. Three main approaches are used:

Costing Approach	Method	When to Use
Ingredient (bottom-up) costing	Enumerate every input required (staff time, training, supplies, transport, overhead); attach unit costs to each; multiply by quantity and scale. Most accurate but labor-intensive	For project budget development; donor proposals; when detailed activity data is available
Normative / Standard costing	Use established standard costs per beneficiary from published sources (e.g., WHO cost tables, UNICEF supply catalogue, cost-per-SAM-case-treated benchmarks). Faster but less context-specific	For rapid national-scale budget advocacy; planning-phase estimates; comparing scenarios
Financial absorption analysis	Examine historical expenditure data to understand what has actually been spent on nutrition vs. what was planned. Identifies under-spending and budget execution gaps	For accountability analysis; identifying implementation bottlenecks; assessing government nutrition budget adequacy

B. Key Unit Cost Benchmarks for Sudan Planning

Nutrition Intervention	Standard Unit Cost (approximate)	Notes & Sudan Context
SAM treatment, CMAM Outpatient (OTP)	USD 150-200 per child treated	Includes RUTF, medical supplies, community mobilization, supervision. Sudan OTP cost likely higher due to insecurity, access constraints, and imported RUTF
SAM treatment, Stabilization Center (SC)	USD 400-700 per child treated	Inpatient care for complicated SAM; requires functional health facility with trained staff, severely limited in conflict-affected Sudan states
MAM treatment (TSFP)	USD 50-100 per child treated	Targeted supplementary feeding; RUSF or CSB++; community-based. Competes for same supply chains as OTP
Vitamin A supplementation, campaign	USD 1-2 per child per year	Biannual supplementation of children 6-59 months; extremely high-value intervention. Sudan campaigns dependent on government + UNICEF co-financing
IYCF counselling — community-based	USD 50-150 per beneficiary per year	Community nutrition volunteer model; cost driven by training, supervision, and materials. Highly variable by delivery model
Iron-folic acid supplementation in pregnancy	USD 2-5 per pregnant woman per year	Through ANC services; supply chain most critical bottleneck in Sudan; stockouts common
School meals program	USD 30-80 per child per year	WFP school feeding in Sudan: ~USD 45-60/child/year depending on state; significant contribution to food security for school-aged children

C. The Lives Saved Tool (LiST), Modeling Intervention Impact

LiST (Lives Saved Tool) is a free, evidence-based modeling tool developed by Johns Hopkins University that estimates the number of child deaths and cases of stunting averted by scaling up a package of health and nutrition interventions. It is used extensively by UNICEF, WHO, and governments for national investment planning:

- **Inputs**: Current coverage of key interventions (CMAM, vitamin A supplementation, zinc treatment, IYCF counselling, breastfeeding promotion, handwashing); target coverage levels; population data (births, child mortality rates, cause-of-death distribution)
- **Method**: LiST uses published meta-analytic efficacy estimates for each intervention against specific causes of death. Coverage increase x population at risk x efficacy = lives saved. Runs from baseline to target year
- **Outputs**: Estimated child deaths averted per year; reduction in stunting prevalence; cases of wasting averted; DALYs saved, all disaggregated by intervention
- **Limitations**: LiST assumes interventions are delivered at target quality and coverage; does not model implementation costs or feasibility constraints; efficacy estimates from efficacy trials may not replicate in weak health systems

Sudan Context: *Sudan's MSNP planning process used LiST modeling to demonstrate that scaling up a package of 10 high-impact nutrition interventions could avert 40,000+ child deaths annually by 2025. This modeling was presented to donor conferences as part of the Nutrition for Growth investment case, demonstrating how quantitative modeling tools convert program targets into compelling policy advocacy products.*

V. DESIGNING A NATIONAL NUTRITION PLAN (NNP)

A. Structure and Content of a Well-Designed NNP

A National Nutrition Plan (NNP) or Multi-Sector Nutrition Plan (MSNP) is the government's primary operational vehicle for implementing its nutrition policy commitments. An internationally recognized high-quality NNP contains:

NNP Component	What It Contains	Quality Benchmark
Situation Analysis	Current nutrition status (survey data); determinants analysis (UNICEF framework); equity analysis (by state, wealth quintile, gender); trend analysis; identification of priority problems	Uses most recent national data; disaggregated by geography and equity dimensions; honest about data gaps
Objectives and Targets	Specific, time-bound national targets aligned with WHA Global Nutrition Targets, SDGs, and regional commitments (AU Malabo Declaration)	SMART targets at outcome level; baseline values specified; realistic given resource envelope and implementation capacity
Priority Interventions	Evidence-based selection of high-impact interventions prioritized by burden, cost-effectiveness, and feasibility; mapped to UNICEF framework causal levels	Interventions explicitly linked to determinants; direct nutrition interventions (DN) AND nutrition-sensitive interventions (NS) included
Sectoral Roles and Responsibilities	Clear assignment of responsibility across ministries (Health, Agriculture, Education, Social Protection, WASH) with accountability mechanisms	Multi-sector coordination body specified; budget accountability by ministry; joint M&E framework
Costed Financing Plan	Resource requirements estimated per intervention per year; domestic budget commitments identified; donor financing mapped; funding gap calculated	Total cost of plan calculated; domestic vs. donor financing ratio; financing gap triggers donor mobilization strategy
M&E Framework	Results framework with indicators, baselines, targets, means of verification, reporting frequency, and responsible party for each indicator level	Includes process, output, outcome, and impact indicators; annual review cycle; independent evaluation at midterm and endline
Implementation Arrangements	Governance structure; coordination mechanisms; state-level implementation modalities; capacity development plan	SUN coordination platform structure; state nutrition committees; link to national health plan

Sudan Case Study: Sudan's MSNP — Strengths, Gaps, and Conflict Impact

- **Strengths**: Sudan's MSNP (2014-2018, revised 2019) was developed through a multi-stakeholder process aligned with SUN principles; included a costed results framework; clearly assigned multi-sector responsibilities; adopted the UNICEF conceptual framework as its analytical foundation
- **Gap 1. Domestic financing**: The MSNP was largely donor-financed; domestic government budget allocation to nutrition remained <1% of health budget. A national plan that is 90%+ donor-financed is not a national plan, it is an aid coordination framework
- **Gap 2. State-level operationalization**: National targets were not disaggregated into state-level plans with state budgets and accountability. Implementation was largely driven by wherever UN/NGO programs happened to operate, not by national equity priorities
- **Gap 3. Conflict sensitivity**: The original MSNP had no conflict sensitivity analysis and no contingency plans for implementation disruption. The 2019 political transition revised the plan but the 2021 coup and 2023 conflict rendered implementation virtually impossible in affected states
- **Gap 4. Coordination:** The High-Level Nutrition Steering Committee, the plan's governance body, met irregularly and lacked authority to hold ministries accountable for their commitments. Coordination without authority is a coordination illusion
- **Current status (2024):** No functional national nutrition plan is being implemented. Emergency nutrition response is being managed on a humanitarian basis by UNICEF, WFP, and NGOs. A new MSNP will need to be developed as part of any post-conflict recovery planning process

Practical Activity: Practical Exercise, Designing a LogFrame for a Sudan Nutrition Program

- **Scenario**: You are designing a 3-year nutrition program in Kassala state, targeting 50,000 children 6-23 months and their mothers in 5 rural localities with high stunting (42%) and low MAD (18%)
- **Step 1. Theory of Change**: Draw the causal pathway from your activities to impact. Identify at least 5 explicit assumptions. For each assumption, identify the key risk and one mitigation strategy
- **Step 2. LogFrame Goal**: Write the goal statement. Select one SMART impact indicator with source of data, baseline value, and 5-year target. Specify your means of verification
- **Step 3. LogFrame Purpose**: Write the program purpose (outcome). Select two SMART outcome indicators. For each: specify baseline, target, measurement method, timing, and responsible party
- **Step 4. LogFrame Outputs**: List four key outputs. For each output write one SMART output indicator verifiable through routine program data
- **Step 5. Costing**: Using benchmark unit costs from this lecture, estimate the approximate annual cost of your program. What is the cost per child reached per year? Is this within a realistic donor funding range for Sudan?
- **Deliverable**: A completed 4-row LogFrame matrix plus a one-page ToC diagram with assumptions annotated. Be prepared to defend your indicator choices and costing assumptions in a 5-minute class presentation

Lecture Summary
● **Planning hierarchy**: Policy sets 'what and why'; Strategy sets 'how in principle'; Plan/Program sets 'who does what, by when, with what'; Project/Activities are the operational level. The 'missing middle' no coherent national plan, is Sudan's core governance gap ● **Theory of Change**: Makes causal pathways and assumptions explicit. In Sudan, standard ToC assumptions about stability, women's autonomy, and food availability are high-risk and must be treated as variables requiring active mitigation strategies, not background conditions ● **LogFrame**: 4-row matrix (Goal/Purpose/Outputs/Activities) x 4 columns (description/indicators/MoV/assumptions). All indicators must be SMART. Means of Verification must be specified and budgeted. Required by virtually all major donors
● **Program costing**: Three approaches (ingredient bottom-up; normative/standard; financial absorption analysis). Key benchmarks: SAM/OTP USD 150-200/child; vitamin A USD 1-2/child/year; IYCF counselling USD 50-150/beneficiary/year. LiST models deaths averted from coverage scale-up
● **National Nutrition Plans**: Must contain situation analysis, SMART targets, priority interventions, sectoral responsibilities, costed financing plan, and M&E framework. Sudan's MSNP had structural weaknesses in domestic financing, state-level operationalization, and conflict sensitivity — all now moot given the 2023 conflict's destruction of implementation infrastructure ● A technically perfect plan that is not politically owned, domestically financed, or conflict-sensitive is not a policy instrument, it is a document. The gap between Sudan's policy documents and its nutrition reality is the most important lesson of this lecture

Suggested Reading:

1. Doll J et al. (2009). Developing a Theory of Change for a community nutrition program. |
2. W.K. Kellogg Foundation (2004). Logic Model Development Guide. |
3. Shekar M et al. (2016). An Investment Framework for Nutrition. World Bank. |
4. Scaling Up Nutrition (2015). National Nutrition Plans: A Guide to Development. |
5. Walker N et al. (2013). LiST: a tool for measuring program impact on child mortality. BMC Public Health. |
6. FAO/WHO (2014). ICN2: Better Nutrition Better Lives — Framework for Action.

SUDAN
El Obeid
Nuba Mountains
White Nile
Blue Nile
River
ETHIOPIAN

NUDT 414 | LECTURE 4

Nutrition Policy Implementation

Scaling Up Interventions, Health Systems Integration, Social Protection & Political Economy

Food & Nutrition Policy Planning (NUDT 414) | 2 Credit Hours

Learning Outcomes
● Explain the implementation gap and identify the organizational, systemic, and political factors that cause it
● Describe the WHO health system building blocks framework and analyses how each block enables or constrains nutrition program delivery in Sudan ● Apply the Coverage Framework (access, utilization, quality) to diagnose barriers to nutrition service uptake at community level
● Evaluate social protection programs as nutrition-sensitive instruments and assess their design requirements for nutritional impact
● Analyze the political economy of nutrition policy implementation, identifying incentive structures, vested interests, and power dynamics that shape what gets implemented and what does not ● Design a conflict-sensitive implementation strategy for a nutrition program in a fragile or conflict-affected setting such as Sudan

I. THE IMPLEMENTATION GAP — WHY POLICIES FAIL TO REACH PEOPLE

A. Defining the Implementation Gap

The implementation gap refers to the persistent, documented discrepancy between what nutrition policies and programs promise on paper and what they actually deliver to the people they are designed to serve. It is arguably the most important and most neglected problem in global nutrition. Billions of dollars of nutrition policy commitments and program designs fail not because of poor evidence or weak design, but because of implementation failures.

The implementation gap has three distinct dimensions, each requiring different analytical tools and solutions:

Gap Dimension	Definition	Diagnostic Question	Sudan Manifestation
Coverage gap	The proportion of people who need a service but do not receive it. The most fundamental implementation failure	What percentage of children with SAM are reached by CMAM treatment? What proportion of pregnant women receive iron supplementation?	Nationwide SAM treatment coverage estimated at 20-35% of cases, meaning 65-80% of children with life-threatening acute malnutrition receive no treatment. Iron-folic acid coverage through ANC: ‹40% of pregnant women in most states
Quality gap	Services are nominally delivered but not at the standard required to produce the intended health or nutrition outcome	Are CMAM protocols correctly followed? Is therapeutic food correctly prepared and administered?	Enumerator training is inconsistent across states; RUTF distribution occurs without adequate caregiver counselling in many sites;

		Are counselling messages accurately delivered?	stockouts mean children start treatment but cannot complete the full course, severely reducing cure rates
Equity gap	Services reach some populations (typically less vulnerable, more accessible, better-connected) but systematically miss the most vulnerable	Do nomadic pastoralists, IDP camp residents, and children in conflict-affected areas receive the same coverage as settled urban children?	In Sudan, the coverage gap is inversely correlated with vulnerability: the most remote, the most displaced, and the most conflict-affected receive the least. Nomadic populations in Darfur and Red Sea state have consistently lower coverage than sedentary communities

B. Root Causes of the Implementation Gap

Implementation gap analysis must go beyond describing the gap to diagnosing its causes. The most common root causes, all present in Sudan, are:

- **Weak implementation systems**: Insufficient trained cadres; inadequate supervision; absent or dysfunctional supply chains; poor information systems. These are infrastructure problems requiring sustained investment, not quick fixes
- **Resource inadequacy**: Budget commitments made at policy level are not translated into sufficient budgetary allocations. Sudan's government nutrition budget has chronically represented less than 1% of total health spending — a structural misalignment between stated priorities and actual resources
- **Coordination failures**: Multiple actors (government ministries, UN agencies, international and national NGOs) operating in the same space without adequate coordination. Duplication in some areas, complete absence in others. Sudan has 200+ NGOs nominally working in nutrition, many operating without reference to national protocols or geographic coordination
- **Political economy barriers**: Implementation requires action by actors who may not share the policy's goals, face competing pressures, or have private interests that conflict with program objectives. These are not technical problems; they are political problems that technical solutions cannot solve
- **Conflict and fragility**: In Sudan specifically, armed conflict directly destroys implementation infrastructure: health workers flee, facilities are looted or destroyed, supply chains are cut, community structures collapse. These are not implementation challenges; they are implementation impossibilities that require political resolution first

Sudan Context: *Sudan's 2023 conflict illustrates the ultimate implementation gap: a formally constituted National Nutrition Program with staff, protocols, and a plan, rendered operationally irrelevant within weeks as the health system collapsed in Khartoum and major conflict states. The lesson is not that the NNP was poorly designed. It is that no implementation system can function without the minimum political and security conditions that make service delivery possible.*

II. HEALTH SYSTEMS INTEGRATION — THE WHO BUILDING BLOCKS

A. The WHO Health System Framework

The WHO health systems framework identifies six 'building blocks', the core functions that a health system must perform to deliver services effectively. Nutrition program delivery depends on all six blocks functioning adequately. In fragile states like Sudan, multiple blocks are simultaneously failing, creating compounding constraints on implementation:

Building Block	Core Function	Implications for Nutrition	Sudan Status
Service Delivery	Provision of nutrition services at appropriate levels of the health system (community, primary, secondary, tertiary) with adequate coverage and quality	CMAM must function at community and primary care levels; growth monitoring at community level; micronutrient supplementation integrated into ANC and immunization; IYCF counselling at every contact	Health system largely collapsed in conflict states post-April 2023. Estimated 70-80% of health facilities in active conflict zones non-functional. Service delivery operating only through emergency modalities in accessible areas
Health Workforce	Sufficient numbers of appropriately trained, motivated, and supported health workers at all levels	Community nutrition volunteers (CNVs), nurse-midwives for ANC-based services, nutrition officers at state level, specialist staff at central level. All require pre-service training, in-service support, and incentive structures	Mass displacement of health workers from conflict zones; brain drain of trained nutrition staff; community volunteer attrition due to insecurity and lack of incentives. Significant deskilling as training programs suspended
Health Information Systems	Timely, reliable data on nutrition status, service coverage, and program performance to guide decision-making	HMIS must capture CMAM admissions/outcomes, GMP attendance, ANC nutrition service coverage, food security indicators. Feeds directly into M&E frameworks and early warning	HMIS functioning at <40% completeness even before 2023 conflict. Post-April 2023: no reliable data from conflict-affected states. Decision-making operating on best-available estimates and remote sensing proxies
Medical Products, Vaccines & Technologies	Reliable supply of essential nutrition commodities: RUTF, RUSF, micronutrient supplements, therapeutic milk, anthropometric equipment	RUTF and RUSF are imported — entirely dependent on international procurement supply chains (UNICEF Supply Division). Any disruption to imports, customs clearance, or in-country logistics = immediate stock-out	Sudan's RUTF supply chain entirely dependent on international procurement. Port Sudan (primary entry point) disruptions severely affect supply. RUTF stockouts common; therapeutic feeding programs forced to discharge children before clinical recovery
Financing	Sustainable, adequate funding for nutrition programs from domestic and external sources; financial protection for beneficiaries	Government budget allocation, donor contributions, out-of-pocket barriers to service access. Nutrition services should be free at point of use for all priority groups	Domestic government nutrition financing: <1% of health budget pre-conflict; essentially zero from central government in conflict period. Total dependency on international humanitarian financing. User fee barriers remain in some health

			facilities despite policy of free services
Leadership & Governance	Policies, regulatory frameworks, accountability mechanisms, and coordination systems that steer the health system toward nutrition goals	National nutrition coordination platform; state nutrition committees; accountability for ministry commitments; regulatory framework for food fortification and marketing; coordination of donor nutrition funding	Governance structures largely non-functional in conflict period. No coherent national nutrition governance since late 2021. Coordination occurring informally through UN OCHA and cluster system, a humanitarian, not development, governance modality

Sudan Context: *Sudan demonstrates a total building block failure across all six dimensions simultaneously, an extreme case that illustrates why health system strengthening is inseparable from nutrition program effectiveness. Nutrition-specific interventions (CMAM, micronutrient supplementation) cannot be scaled up when the health system platform they depend on is destroyed. Post-conflict recovery must prioritize health system reconstruction as a precondition for nutrition program resumption.*

III. THE COVERAGE FRAMEWORK — DIAGNOSING BARRIERS TO SERVICE UPTAKE

A. The Three-Delay and Coverage Cascade Models

Coverage analysis moves beyond asking 'what is the coverage rate?' to asking 'why is coverage low?' Two complementary frameworks help diagnose barriers at different stages of the service delivery pathway:

1. The Three-Delay Model (Thaddeus & Maine, adapted for nutrition)

Originally developed to understand maternal mortality, the Three-Delay Model identifies three sequential barriers that prevent people from receiving life-saving services in time:

Delay	Description	Nutrition Application — Sudan Example
Delay 1 Decision to seek care	Household-level failure to recognize a problem or decide to seek care. Driven by knowledge gaps, cultural beliefs, perceived severity, and gender power dynamics	Mother does not recognize early wasting signs in child; believes thinness is normal given community food insecurity; husband does not permit travel to health facility; traditional healer consulted first. Root cause: inadequate IYCF knowledge; low women's agency
Delay 2 Reaching care	Geographic, physical, and logistical barriers between household and service point. Distance, road conditions, transport cost, security	Nearest outpatient therapeutic program (OTP) site is 25 km away on unpaved road; no public transport; family cannot afford donkey transport cost of SDG 500; rainy season makes road impassable for 3 months. Root cause: inadequate geographic coverage of CMAM sites; no community-based screening and referral
Delay 3 Receiving adequate care	Barriers at the facility or service point itself: stockouts, absent staff, poor quality services, user fees, waiting times	Arrives at OTP site to find no RUTF in stock (stockout for 6 weeks); nurse untrained in CMAM protocols; child weighed incorrectly; treatment card not completed; caregiver given no counselling on home treatment. Root cause: supply chain failure; inadequate training and supervision

2. The Coverage Cascade / Bottleneck Analysis

The coverage cascade maps the proportion of the target population passing through each step from being in need of a service to receiving it at adequate quality. Each step represents a potential bottleneck where coverage is lost:

- **Step 1. Geographic access**: Is there a service point within reach? (e.g., OTP site within 5 km walking distance). Geographic coverage: proportion of target population living within catchment area of a service point
- **Step 2. Initial utilization**: Of those with geographic access, what proportion seek and present to the service? Driven by demand-side factors: knowledge, perceived need, cultural acceptability, cost, time
- **Step 3. Continuous utilization**: Of those who present, what proportion complete the full treatment course without defaulting? CMAM default rates in Sudan: commonly 20-35%, mostly due to Delay 2 factors (distance and cost of repeat visits) and Delay 3 (stockouts)
- **Step 4. Effective coverage**: Of those who complete treatment, what proportion are cured (achieve nutritional recovery)? Cure rates in well-functioning CMAM programs: ›75% (Sphere standard). In Sudan during conflict: frequently ‹50% due to quality failures and incomplete treatment

Practice Tool: *The bottleneck analysis is an essential practical tool: you cannot improve coverage without first diagnosing where the greatest losses occur. In Sudan's Darfur states, analysis typically shows that the largest bottleneck is Step 1 (geographic access, too few OTP sites covering vast, sparsely populated areas) combined with Step 3 (continuous utilization, high defaults due to insecurity preventing repeated facility visits). Solutions must match the specific bottleneck: adding more OTP sites addresses Step 1; mobile outreach teams address Step 2; doorstep RUTF distribution addresses Step 3.*

IV. SOCIAL PROTECTION AS A NUTRITION POLICY INSTRUMENT

A. The Social Protection-Nutrition Nexus

Social protection programs, cash transfers, food transfers, school feeding, subsidies, and social insurance, are among the most powerful nutrition-sensitive interventions available to governments. They address the underlying causes of malnutrition (food insecurity, poverty, low women's empowerment) that nutrition-specific interventions cannot reach alone. The evidence base for social protection's nutritional impact has grown substantially since the mid-2000s:

Social Protection Program Type	Nutrition Impact Pathway	Evidence Base	Sudan Relevance
Unconditional Cash Transfers (UCT)	Increases household purchasing power for food; improves dietary diversity; reduces negative coping strategies (reducing meals, selling assets). Does NOT require conditionalities to improve nutrition when combined with SBCC	Kenya CT-OVC, Zambia CGP, Ethiopia PSNP: consistent evidence of reduced wasting and improved dietary diversity, particularly when transfer values are adequate (>15-20% of household consumption)	WFP and UNICEF operate cash-based interventions (CBI) in Sudan emergency response. Multipurpose cash grants (MPCG) reaching ~500,000 households in 2023; severely underfunded relative to need. Government social protection system (Zakat, National Social Insurance Fund) has collapsed in conflict period
Conditional Cash Transfers (CCT)	Same income effect as UCT PLUS behavior change via conditionalities (attending ANC, growth monitoring, nutrition education sessions). Conditions also improve service utilization	Mexico PROGRESA/Oportunidades: reduced stunting 9.7%; Colombia Familias en Accion: improved dietary diversity and ANC attendance; Brazil Bolsa Familia: associated with reduced IMR. Conditions effective only when services exist and are accessible	CCT design not appropriate for Sudan's current emergency context, conditionalities require functional health services that do not exist in conflict zones. May be relevant in post-conflict recovery phase for urban populations with accessible services
Food-Based Programs (in-kind transfers)	Directly increases food availability; commodity choice shapes dietary quality. Blanket Supplementary Feeding (BSFP): prevents deterioration in at-risk populations during acute food crises	BSFP evidence in Sahel crises: reduces GAM progression; prevents deterioration in Phase 2-3 populations. WFP general ration in Sudan IDP camps: critical food access safety net	WFP general food distribution and BSFP are the primary social protection mechanism for 5+ million IDPs in Sudan. Ration value and commodity mix consistently below Sphere minimum standards due to funding gaps. Commodity pipeline breaks leave beneficiaries without food for weeks
School Feeding Programs	Reduces hunger during school day improving learning and attendance; provides safety net drawing children to school (de facto social protection); can deliver micronutrients through fortified meals	WFP school feeding meta-analysis: increases enrolment 5-8%; reduces gender gap; improves cognition. Nutritional impact modest unless fortified and complemented by deworming and micronutrient supplementation	WFP school feeding in Sudan pre-2023: reaching 750,000+ children in Darfur and conflict-affected states. Program largely suspended in conflict zones since April 2023. School feeding is one of the most politically popular nutrition-sensitive interventions, important for domestic budget advocacy
Productive Safety Nets / Livelihoods	Protects and restores productive assets (land, livestock, tools); prevents irreversible coping strategies; enables agricultural production recovery after shocks	Ethiopia PSNP: reduced food insecurity and improved dietary diversity in drought-affected regions; combined with nutrition-sensitive agricultural support achieved greater stunting reduction than food aid alone	Sudan's livelihoods and productive safety net capacity is extremely limited. Pre-conflict: some WFP-supported livelihood programs in Darfur. Post-conflict: priority must be rapid livelihoods restoration (agricultural input support, livestock restocking) alongside emergency food assistance to prevent multi-year hunger crises

B. Design Requirements for Nutritional Impact

Social protection programs do not automatically improve nutrition. The evidence shows that nutritional impact depends critically on specific design features, a key lesson for Sudan's post-conflict social protection reconstruction:

- **Transfer value adequacy**: Cash or food transfers must be large enough to meaningfully address food insecurity. Transfers below 15-20% of household consumption have negligible nutritional impact. WFP rations in Sudan IDP camps are chronically below Sphere minimum energy requirements due to funding shortfalls
- **Nutrition-sensitive design**: Social protection programs must be explicitly designed to improve nutrition, not just assume it will happen as a by-product of income transfers. This means: targeting pregnant and lactating women; timing transfers around critical nutrition windows (harvest failure, lean season); linking beneficiaries to nutrition-specific services (ANC, CMAM, IYCF counselling)
- **Social and behavior change communication (SBCC) integration**: Evidence from multiple countries shows that cash transfers combined with SBCC (nutrition education, IYCF counselling) produce significantly greater nutritional gains than cash transfers alone. The transfer addresses the economic constraint; SBCC addresses the knowledge and practice constraint
- **Gender-responsive programming**: Transfers to women vs. men produce significantly different nutritional outcomes — women spend a higher proportion of additional income on food and child health (Hoddinott & Haddad, 1995; subsequent replications). Program design must ensure women control transfers and decisions about their use
- Complementarity with nutrition-specific services: Social protection addresses underlying food insecurity but cannot treat SAM or correct micronutrient deficiencies. Effective nutrition programs integrate social protection (food/cash) with nutrition-specific treatment (CMAM, micronutrient supplementation), the 'graduation model'

V. POLITICAL ECONOMY OF NUTRITION IMPLEMENTATION

A. Why Politics Shapes What Gets Implemented

Political economy analysis examines how power, interests, and institutions shape policy outcomes, including which nutrition programs get funded, implemented, and sustained, and which exist only on paper. It is the most important and least taught dimension of nutrition policy work.

The central insight of political economy analysis is that policy actors do not simply implement rational, evidence-based plans. They act in accordance with their interests, within institutional constraints, and in response to incentive structures that may or may not align with program objectives. Understanding this is not cynical, it is prerequisite to effective nutrition advocacy and program design.

B. Political Economy Analysis Framework for Nutrition

PE Dimension	Key Questions	Sudan Application
Interests	Who gains and who loses from implementing (or not implementing) this nutrition policy? Which powerful actors benefit from the status quo?	Importers of processed food resist labelling regulations that reduce sales; military-linked agricultural parastatals resist land reform that would improve smallholder production; pharmaceutical companies benefit from therapeutic food procurement — creating both allies and opponents of nutrition programs
Institutions	What formal and informal rules of the game shape how nutrition decisions are made? What is the institutional culture around evidence use and accountability?	Sudan's governance tradition is highly centralized and hierarchical; state-level decision-making is constrained by federal authority; tribal and customary institutions exercise authority over land and livelihoods outside formal government structures; informal power structures often matter more than formal ones
Ideas	Whose ideas about nutrition dominate? What narratives frame the problem? How do dominant development paradigms shape what solutions are considered legitimate?	In Sudan's humanitarian context, emergency response framing dominates, crowding out development and system-strengthening approaches. International donor frameworks (SUN, SDGs) introduce ideas that may not align with local priorities or be understood in local terms
Power	Where is power concentrated? Who are the veto players who can block implementation? Who are the champions who can drive it?	In Sudan: military leadership as ultimate veto player on resource allocation; international donors as veto players on aid-funded programs; UN Security Council as veto player on peace process (China, Russia blocking resolutions). Nutrition champions: select FMoH officials, UNICEF leadership, SUN civil society network
Incentives	What incentives do implementers face? Are they rewarded for results or for compliance? Does the accountability system create perverse incentives?	Health facility staff may be rewarded for reporting high coverage numbers regardless of quality; CMAM program managers under pressure to show high cure rates may exclude high-risk cases from admission; district health officers may report upward to please supervisors rather than accurately

C. Financing Politics — Sudan's Nutrition Budget

Budget analysis is one of the most powerful political economy tools available to nutrition advocates. The budget reveals actual government priorities more honestly than any policy document. In Sudan:

- **Pre-conflict Sudan government health budget**: approximately 6-7% of total government expenditure (below WHO recommended 15%). Of the health budget, nutrition-specific allocations: estimated <1%. The NNP was a plan with no domestic money behind it
- **Donor dependency**: 85-95% of nutrition program financing came from international donors (USAID, DFID, ECHO, Kuwait Fund, World Bank IDA). This creates a structural fragility: when political crises (2019 transition, 2021 coup, 2023 conflict) cause donors to suspend funding, programs collapse immediately
- **Off-budget military spending**: Sudan's military budget (including RSF and SAF) consumed an estimated 30-40% of total government expenditure in the pre-conflict period, resources that structurally crowded out social sector spending including nutrition. This is the defining political economy constraint on Sudan's nutrition financing
- **Post-conflict reconstruction financing**: Any post-conflict nutrition recovery plan must address the structural financing gap. Options include: international debt relief (Sudan reached HIPC decision point in 2021 before the coup suspended the process); ring-fenced social spending commitments as conditions on international financial normalization; rebuilding domestic revenue collection capacity

Sudan Case Study: Political Economy of Nutrition in Sudan — Key Dynamics
● The most powerful veto player on Sudan's nutrition outcomes is not the Ministry of Health — it is the Ministry of Finance and, ultimately, the military leadership that controls revenue allocation. No nutrition advocacy strategy that ignores this power reality will succeed
● International humanitarian actors (UNICEF, WFP, INGOs) have more implementation power than the government in most conflict-affected states, but zero legislative or budget authority. This creates a governance vacuum: those with the resources lack authority; those with authority lack resources
● Sudan's chronic humanitarian crisis has created a perverse incentive: emergency funding is more readily available than development funding. This rewards the continuation of emergency conditions rather than investing in the structural changes that would make emergencies less frequent and less severe ● Civil society nutrition advocates (SUN CSN Sudan, academic institutions, professional associations) are systematically under-resourced and politically constrained. Building a domestic constituency for nutrition investment, independent of international donor advocacy, is essential for long-term change but has received virtually no investment
● Post-conflict reconstruction presents a rare political economy opportunity: the damage to existing structures creates space for institutional reform. Sudan's post-conflict recovery planning must use this window to restructure nutrition governance, financing, and accountability mechanisms rather than simply rebuilding pre-conflict systems that were already failing

VI. CONFLICT-SENSITIVE NUTRITION PROGRAMMING

A. What Is Conflict Sensitivity?

Conflict-sensitive programming is the ability of a program to understand the context in which it operates, including conflict dynamics, and to act to minimize negative impacts and maximize positive impacts on conflict drivers. In Sudan, conflict sensitivity is not optional: programs that ignore conflict dynamics risk doing harm, becoming instruments of conflict, or simply failing to reach the most vulnerable.

B. Do No Harm Framework Applied to Sudan Nutrition

- **Connectors and dividers**: Every nutrition program operates in a context of social tensions (connectors = factors that link communities; dividers = factors that separate and create conflict). Aid distribution that follows ethnic or tribal lines, or that differentially benefits one community over another, risks becoming a 'divider' that intensifies conflict rather than supporting recovery
- **Aid as a resource in conflict**: In Sudan, food and nutrition assistance has on multiple occasions been weaponized by armed actors, either diverted to feed fighters, used as leverage over civilian populations, or provided preferentially to allied communities. Conflict-sensitive programming requires robust accountability mechanisms and access negotiation protocols
- **Staff safety and security**: Nutrition workers are targeted in Sudan. MSF, ICRC, and UN staff have been killed, detained, or expelled in various conflict episodes. Programming must be designed with staff safety as a non-negotiable constraint — not an afterthought
- **Community accountability mechanisms**: Beneficiary feedback and community participation are essential conflict-sensitivity tools. Communities that have ownership of nutrition programs are less likely to allow them to be manipulated by armed actors

Conflict-Sensitive Design Principle	Application to Sudan Nutrition Programming
Geographic impartiality	Distribute nutrition services based on need indicators (GAM prevalence, IPC phase) not on political, ethnic, or tribal affiliation. Transparent needs-based geographic targeting is essential to maintain legitimacy with all community groups
Access negotiation	Negotiate humanitarian access with all parties to the conflict (SAF, RSF, non-state armed groups) as a precondition for service delivery in contested areas. This is politically uncomfortable but operationally essential. Refusal to negotiate access condemns vulnerable populations to service exclusion
Community-based modalities	Where facility-based services are impossible due to insecurity, shift to community-based models: home-based CMAM, mobile outreach teams, community health worker delivery of RUTF and supplements. Reduces exposure of beneficiaries and staff to conflict risks at fixed locations
Cash-based interventions in conflict	CBI (cash and voucher assistance) is generally more conflict-sensitive than in-kind food distribution in many Sudan contexts, less prone to physical diversion, more dignifying, and stimulates local markets. However, requires functioning market systems and financial access infrastructure
Protection mainstreaming	Nutrition programs must integrate gender-based violence (GBV) screening and referral; address protection risks associated with women's movement to service points; partner with protection actors. In Sudan's IDP contexts, GBV rates are extremely high and nutrition staff must be trained to identify and refer cases
Exit and sustainability planning	Conflict-sensitive programs plan from the outset for transition from emergency modalities to development approaches as security permits. This means building local capacity (government, civil society) rather than creating permanent parallel structures that bypass national systems

Practical Activity: Practical Activity — Implementation Bottleneck Analysis

- **Scenario**: A CMAM program in South Kordofan state reports a cure rate of 48% (against the Sphere standard of ›75%) and a default rate of 31% (against the standard of ‹15%). GAM coverage is estimated at only 22% of SAM cases in the target area.
- **Step 1. Coverage cascade**: Map the coverage cascade for this program. Estimate where the greatest losses are occurring at each step (geographic access, initial utilizations, continuous utilizations, effective coverage). What data would you need to confirm your estimates?
- **Step 2. Three-delay analysis**: For each of the three delays, identify the most likely barriers specific to South Kordofan (conflict context, geographic features, cultural factors, health system weaknesses). Use the lecture content and your own analysis
- **Step 3. Political economy**: Who benefits from maintaining the status quo (poor CMAM quality and low coverage)? Are there actors with incentives to inflate reported performance? What accountability mechanisms could address this?
- **Step 4. Conflict sensitivity check**: Identify two specific conflict-sensitivity risks in this South Kordofan program context. For each risk, propose one concrete program design adaptation
- **Step 5. Improvement plan**: Write a 500-word implementation improvement plan addressing the identified bottlenecks. Be specific about: what will change, who is responsible, what resources are needed, and how you will know if it is working

Lecture Summary

- The implementation gap has three dimensions: coverage gap (not reaching people), quality gap (services not effective), and equity gap (missing the most vulnerable). Root causes: weak systems, resource inadequacy, coordination failure, political economy barriers, and conflict
- **WHO health system** building blocks (service delivery, workforce, information systems, commodities, financing, governance): all six are simultaneously failing in conflict-affected Sudan. Nutrition programs cannot function without minimum health system functionality — system strengthening is inseparable from nutrition programming
- **Coverage framework**: Three-Delay Model (decision to seek care; reaching care; receiving adequate care) and Coverage Cascade (geographic access → utilizations → continuity → quality) diagnose WHERE in the service pathway coverage is lost and WHY — enabling targeted solutions
- **Social protection** is the most powerful nutrition-sensitive intervention class: cash transfers, food transfers, school feeding, and livelihoods programs address underlying food insecurity. Nutritional impact requires: adequate transfer value; nutrition-sensitive design; SBCC integration; gender-responsive programming; and complementarity with nutrition-specific services
- **Political economy of nutrition implementation**: interests, institutions, ideas, power, and incentives determine what actually gets implemented. Sudan's defining PE constraint: military spending crowds out social sector financing; donor dependency creates fragility; humanitarian framing crowds out development approaches. Budget analysis reveals true priorities
- **Conflict-sensitive nutrition programming**: geographic impartiality; access negotiation with all armed parties; community-based modalities where facility services are impossible; cash-based interventions where markets function; protection mainstreaming; building local capacity from the outset for post-conflict transition

Suggested Reading:

1. Peters DH et al. (2009). Poverty and access to health care in developing countries. Ann NY Acad Sci.
2. Victora CG et al. (2011). Maternal and child undernutrition: consequences for adult health and human capital. Lancet.
3. Haddad L et al. (2016). A new global research agenda for food. Nature.
4. Devereux S & Sabates-Wheeler R (2004). Transformative social protection. IDS Working Paper.
5. Mercy Corps (2017). Conflict-sensitive nutrition programming, field guide.
6. World Bank (2017). Realizing the Full Potential of Social Safety Nets in Africa.

NUDT 414 | LECTURE 5

Monitoring, Evaluation & Accountability

M&E System Design, Evaluation Methods, Evidence Use & Policy Influence

Food & Nutrition Policy Planning (NUDT 414) | 2 Credit Hours

Learning Outcomes
• Design a results-based M&E system for a nutrition program including indicators at all levels, data collection methods, and reporting mechanisms • Distinguish between monitoring and evaluation and select appropriate evaluation designs for different questions and contexts
• Apply qualitative and quantitative methods to nutrition program evaluation and understand their relative strengths and limitations • Describe accountability frameworks in nutrition, including government accountability, donor accountability, and community accountability mechanisms
• Critically analyze how nutrition evidence is (and is not) used in policy processes, and apply strategies to improve evidence uptake • Evaluate Sudan's M&E capacity constraints and design a context-appropriate monitoring strategy for a nutrition program in a fragile setting

I. MONITORING VS. EVALUATION — CORE DISTINCTIONS

A. Definitions and Complementary Roles

Monitoring and evaluation are frequently treated as a single activity (M&E) but they serve fundamentally different purposes, operate at different timescales, and require different methods. Conflating them leads to systems that do neither well:

Dimension	Monitoring	Evaluation
Purpose	Track whether implementation is proceeding as planned; provide real-time data for management decisions; detect problems early enough to correct them	Assess whether the program achieved its intended outcomes and impact; understand why it did or did not work; generate transferable learning
Timing	Continuous, ongoing throughout program implementation; typically monthly or quarterly reporting cycles	Periodic — baseline before program starts; midterm (typically year 2-3 of a 5-year program); endline at program completion; sometimes post-program follow-up
Questions answered	Are activities being implemented? Are outputs being delivered? Are inputs being used as planned? Are there early warning signs of underperformance?	Did the program achieve its outcomes? What was the counterfactual — what would have happened without the program? What worked, for whom, under what conditions, and why?
Primary methods	Routine data collection: program management information systems (MIS);	Household surveys (baseline-endline); randomized controlled trials (where feasible); quasi-experimental designs;

	HMIS data; field supervision reports; rapid assessments; spot checks	process evaluations; qualitative studies; contribution analysis
Primary users	Program managers; implementing staff; direct line supervisors; state-level coordinators, operational decision-makers who need real-time information	Policy-makers; donors; program designers; academic community, strategic decision-makers who need evidence on effectiveness and efficiency
Sudan constraints	HMIS severely disrupted by conflict; program MIS often paper-based with poor data flow to decision-makers; supervisory visits impossible in insecure areas	Baseline surveys may be impossible pre-program in conflict contexts; control groups non-existent in humanitarian settings; endline data collection blocked by continued insecurity; standard evaluation designs frequently infeasible

II. DESIGNING AN M&E SYSTEM — THE RESULTS FRAMEWORK

A. Results Framework Architecture

A results framework is the M&E system's backbone — a structured set of indicators at each level of the results chain (inputs, outputs, outcomes, impact) with specified baselines, targets, data sources, collection frequency, and responsible parties. Every nutrition program funded by a major donor requires one. A well-designed results framework has four essential properties:

- Hierarchical coherence: Indicators at each level are logically linked to the level above. Output indicators measure what is delivered; outcome indicators measure how beneficiaries change; impact indicators measure whether population-level nutrition status improves. There should be no level without indicators and no indicators without a clear causal link to the level above
- Balance between levels: Most program MIS data captures output indicators (activities completed, beneficiaries reached). Many program over-monitor outputs and under-monitor outcomes — measuring delivery rather than change. A balanced results framework has comparable rigor at output and outcome levels
- Feasibility given context: Ideal indicators must be moderated by what is actually measurable in the operating context. In conflict-affected Sudan, a results framework requiring annual population-representative surveys may be technically ideal but operationally impossible. Context-appropriate proxy indicators and remote monitoring methods must be incorporated
- Use for decisions: The test of any M&E system is whether the data it generates is actually used to improve program performance. Data that is collected, reported upward, and filed without influencing decisions is not M&E, it is compliance reporting. Design M&E systems with explicit feedback loops to program managers and communities

B. Indicator Selection at Each Results Level

Results Level	Indicator Type	Examples — Sudan CMAM+IYCF Program	Data Source & Frequency
Impact	Long-term population nutritional status change. Takes 3-5+ years to be detectable. Not attributable to a single program	Stunting prevalence (HAZ<-2SD) in children 6-59 months; wasting prevalence (WHZ<-2SD); anaemia prevalence in children and women; under-5 mortality rate	Population-representative survey (DHS/MICS/SMART); every 3-5 years; requires large sample size; often shared across multiple program
Outcome	Medium-term change in behavior, service utilization, or intermediate nutritional status. Primary program accountability indicator	MAD (Minimum Acceptable Diet) prevalence in 6-23 month children; EBF rate at 6 months; CMAM cure rate; CMAM default rate; MAM treatment coverage rate; mean MUAC at discharge	Program endline survey; SMART surveys; CMAM program data (monthly); IYCF KAP survey at midterm and endline
Output	Direct products of program activities — what is delivered to beneficiaries	Number of children admitted to OTP; number of CNVs trained and active; number of GMP sessions conducted; kg of RUTF distributed; number of household IYCF counselling visits completed	Program MIS (monthly); commodity distribution records; training attendance registers; supervision reports
Input / Process	Resources used and fidelity of implementation — are activities happening as planned?	Budget expenditure rate vs. plan; % of OTP sites with uninterrupted RUTF supply; % of CNVs who received supervisory visit in last month; % of program sites visited by state nutrition officer	Financial reports (monthly); supply chain tracking system; supervision checklists; field visit reports

C. Remote Monitoring in Conflict Settings

In conflict-affected Sudan, standard monitoring approaches, field visits, face-to-face data verification, direct observation, are frequently impossible in active conflict zones. Remote monitoring methods have become essential, with important limitations that must be transparently acknowledged:

- Phone-based monitoring: Regular structured phone interviews with community health workers, facility staff, or community informants. Advantages: low cost, no physical access required. Limitations: sample bias (who has a phone); social desirability bias; inability to observe or verify; network disruptions in conflict areas
- Key informant networks: Trained community members systematically report on nutrition conditions, program status, and access constraints. Used extensively by FEWS NET and NGOs in Sudan. Advantages: local knowledge, sustained presence. Limitations: selection bias; informant security risks; difficulty standardizing information across networks
- Remote sensing and satellite data: NDVI (vegetation index), rainfall data, market price SMS reporting, satellite imagery of displacement movements. Used in IPC analysis. Advantages: objective, systematic, continuous. Limitations: indirect proxy for nutrition status; cannot replace direct measurement of child anthropometry
- Third-party monitoring (TPM): Independent organizations (often local NGOs) conduct physical monitoring on behalf of programs in areas where implementing organizations cannot safely operate. Used by UN agencies and donors in Sudan. Advantages: independent verification, physical presence. Limitations: TPM organizations also face access and security constraints; additional cost and coordination requirements

Sudan Context: *Sudan's current conflict has made conventional M&E systems non-functional across most conflict-affected states. UNICEF and WFP are relying on a combination of phone monitoring, key informant networks, remote sensing, and TPM to maintain minimum program visibility. This represents a severe compromise of evidence quality, but the alternative (no monitoring at all) is worse. Transparent documentation of monitoring limitations is now a core component of responsible reporting in Sudan's humanitarian context.*

III. EVALUATION DESIGNS — SELECTING THE RIGHT METHOD

A. The Evaluation Design Hierarchy

Evaluation designs are often presented as a hierarchy from weakest to strongest evidence, with randomized controlled trials (RCTs) at the top. However, design selection must be driven by the evaluation question, ethical considerations, and context, not by a dogmatic preference for any single design. In humanitarian and fragile-state contexts, designs at the 'top' of the hierarchy are frequently infeasible or unethical:

Evaluation Design	Causal Inference Strength	When Appropriate	Sudan Feasibility
Randomized Controlled Trial (RCT)	Highest, random assignment eliminates selection bias if properly conducted	When: equipoise exists (genuinely uncertain which intervention is better); sufficient scale for randomization; stable context for follow-up; ethical to withhold intervention from control group	Very low in Sudan context: randomization of nutrition interventions in famine-affected populations is rarely ethical; population mobility destroys assignment integrity; conflict disrupts follow-up. Appropriate only for specific product or delivery modality questions in stable sub-regions
Quasi-experimental: Difference-in-Differences (DiD)	Strong, compares change in treatment vs. comparison group over time, controlling for pre-existing differences	When: pre-program data exists for both groups; comparison group can be identified that is similar to treatment group but did not receive the intervention; parallel trends assumption holds	Moderate, requires baseline data (often unavailable pre-crisis) and a credible comparison group. Possible in Sudan where programs operate in some localities but not others due to geographic targeting, if baseline data was collected
Quasi-experimental: Regression Discontinuity (RDD)	Strong — exploits a threshold rule for program eligibility as a natural experiment	When: program eligibility is determined by a continuous variable with a clear cutoff (e.g., MUAC <115mm = eligible for OTP; MUAC 115-125mm = not eligible)	Moderate-high, CMAM admission thresholds create natural discontinuities that could support RDD designs if data quality is sufficient. Relatively underused in nutrition evaluation
Pre-post comparison (before-after)	Weak, cannot distinguish program effect from secular trends, seasonal	When: no other design is feasible; evaluation is primarily for accountability rather than	High — the most commonly used design in Sudan by default. Widely used for CMAM program

	variation, or other simultaneous changes	causal inference; results interpreted cautiously	performance monitoring (comparing admission cohort outcomes). Conclusions about program impact must be heavily caveated
Process evaluation / qualitative	No causal inference, describes implementation fidelity, mechanisms, and contextual factors	When: understanding WHY a program worked or did not work; identifying implementation barriers; ensuring fidelity to design; generating hypotheses for quantitative testing	High, qualitative methods (KII, FGD, observation) are highly feasible in Sudan contexts where quantitative surveys are difficult. Essential complement to any quantitative design

B. Contribution Analysis — Appropriate for Complex, Multi-Sector Nutrition Programs

Contribution analysis (Mayne, 2011) is an evaluation approach specifically designed for complex programs where RCTs are infeasible and multiple interventions are occurring simultaneously, making it highly relevant for Sudan's multi-sector nutrition context:

- Step 1 — Set out the attribution problem: State clearly what causal claim is being made (the ToC) and what alternative explanations exist for any observed change
- Step 2 — Develop the ToC: Make the causal logic explicit with all key assumptions
- Step 3 — Gather existing evidence: What does existing evidence tell us about the likelihood that each ToC link is valid in this context?
- Step 4 — Assemble the contribution story: Synthesize all available evidence to construct the most plausible account of how and why change occurred, explicitly acknowledging uncertainty
- Step 5 — Seek out and address rival explanations: Actively identify and test alternative explanations. Did stunting decline because of the IYCF program or because of improved rainfall and agricultural production in the same period?
- Step 6 — Revise and strengthen the contribution story: Iteratively update the contribution narrative as new evidence emerges

Practice Tool: *Contribution analysis is the recommended evaluation approach for Sudan's multi-sector MSNP — where a single program does not exist, where RCTs are not feasible, and where the goal is to understand what package of interventions, implemented under what conditions, contributes most to nutrition outcomes. It produces credible, nuanced evidence rather than false precision from inappropriate experimental designs.*

IV. ACCOUNTABILITY FRAMEWORKS IN NUTRITION

A. Three Dimensions of Accountability

Accountability in nutrition policy refers to the mechanisms through which actors are held responsible for their commitments and for the use of resources entrusted to them. There are three distinct accountability relationships in the nutrition system, each requiring different mechanisms:

Accountability Dimension	Definition	Mechanisms	Sudan Status
Upward accountability (to donors and governments)	Implementing organizations account to their funders and supervisors for how resources were used and whether commitments were met	Financial audits; narrative and financial reporting; donor reviews; evaluation reports; parliamentary scrutiny of government budgets; UN Board of Auditors for UN agencies	Relatively strong — donor reporting requirements are detailed and enforced; UN internal audit mechanisms function. However: focuses on inputs and outputs, not outcomes; accountability for actual nutritional impact is weak; Sudan government financial accountability to parliament largely non-functional in conflict period
Downward accountability (to beneficiary communities)	Programs account to the people they serve for whether services are delivered as promised, at appropriate quality, and with respect for their dignity and rights	Community feedback mechanisms; beneficiary satisfaction surveys; community scorecards; public posting of program information; community participation in program design and monitoring; complaints and response mechanisms	Very weak in Sudan context, beneficiary feedback mechanisms are largely absent or tokenistic; community participation in program design is rare; communities have little meaningful power to hold service providers accountable. This is the most neglected dimension of accountability in Sudan's nutrition response
Horizontal accountability (between peer institutions)	Government ministries account to each other and to civil society for their commitments under multi-sector nutrition plans; peer review and coordination mechanisms	Joint annual reviews of NNP/MSNP; multi-stakeholder nutrition coordination platforms; civil society nutrition scorecards; media accountability; parliamentary committees; ombudsman functions	Weak, Sudan's multi-sector coordination platform (High-Level Nutrition Steering Committee) met irregularly even before conflict; no effective mechanism for holding ministries accountable for their MSNP commitments; civil society capacity to scrutinize government nutrition performance is very limited

B. The SUN Accountability Architecture

The Scaling Up Nutrition (SUN) Movement has developed a specific accountability architecture for national nutrition commitments, which Sudan as a SUN member has formally signed up to:

- Annual Progress Reports: All SUN countries are expected to submit annual progress reports against their national nutrition plans. Sudan's reporting has been inconsistent, submitted in some years, absent in others. The 2023 conflict has effectively suspended Sudan's participation in the SUN accountability cycle
- SUN Global Gathering peer reviews: Annual peer review process where SUN country representatives review each other's progress and challenges. Functions as a form of horizontal accountability among government nutrition champions. Sudan has participated intermittently
- Multi-stakeholder platforms: SUN requires functional multi-stakeholder platforms including civil society, private sector, UN, and donors alongside government. Sudan's SUN platform met regularly during 2013-2019 period; became sporadic after the 2019 transition and largely inactive after 2021 coup
- Nutrition commitments tracking: Global commitments made at Nutrition for Growth Summits (London 2013, Tokyo 2021, Paris 2025) are tracked by an independent accountability mechanism. Sudan's government commitments at these summits are on record, and largely undelivered, which is itself important accountability information

Sudan Context: *Sudan's participation in international accountability mechanisms (SUN, Nutrition for Growth tracking, WHA target reporting) has historically served as a legitimizing exercise rather than a genuine accountability function. The gap between Sudan's international commitments and its domestic nutrition reality is stark, and rarely challenged by the international community for diplomatic reasons. This is a form of accountability failure at the global level that enables domestic accountability failures to persist.*

V. EVIDENCE USE IN NUTRITION POLICY — THE RESEARCH-POLICY INTERFACE

A. Why Good Evidence Is Insufficient for Policy Change

One of the most consistently observed phenomena in nutrition policy is that technically strong evidence does not automatically translate into policy change. Understanding the research-policy interface, the complex set of factors that determine whether and how evidence influences decisions, is as important as understanding how to generate good evidence:

Barrier to Evidence Use	Description	Overcoming Strategy
Timing mismatch	Research operates on 3-5 year timescales; policy windows open and close in weeks or months. By the time rigorous evidence is available, the decision may already have been made	Maintain a ready bank of synthesized evidence; develop rapid evidence review capacity; anticipate likely policy questions before they arise; keep policy-relevant evidence briefs updated
Communication gap	Research findings are communicated in academic language inaccessible to policy-makers. Technical papers in peer-reviewed journals do not reach ministers or parliamentarians	Systematically translate all research into 2-page policy briefs; develop relationships with policy-maker offices; use data visualization; brief journalists; train researchers in science communication

Trust and credibility	Policy-makers trust evidence from sources they know and respect. International evidence may be distrusted; domestically-generated evidence carries more weight	Invest in Sudanese research capacity (University of Khartoum, Ahfad University); involve government nutrition officers as co-investigators; commission evidence from institutions with credibility in Sudan's policy community
Political compatibility	Even compelling evidence will be ignored if it conflicts with existing political commitments, threatens powerful interests, or requires policy-makers to admit past failures	Frame evidence in terms of political opportunities rather than problems; find champions within the political system; identify how evidence aligns with decision-maker's existing priorities; use analogy with respected peer countries
Capacity to absorb evidence	Policy-maker offices often lack technical staff capable of reading and interpreting nutrition research. Evidence literacy in Sudan's government nutrition system is very limited outside FMoH nutrition staff	Build analytical capacity within government nutrition teams; embed research officers in policy units; develop user-friendly evidence repositories; run nutrition policy capacity-building workshops for decision-makers

B. Evidence Synthesis Tools for Policy Influence

The following evidence synthesis and communication products are most effective for nutrition policy influence in low- and middle-income country contexts. Nutrition policy practitioners should be skilled in producing all of them:

- Policy briefs: 2-4 page documents translating research findings into policy-relevant language. Structure: problem statement; key evidence (3-4 bullet points); policy options; recommended action; estimated cost. The most widely used evidence communication tool in nutrition policy advocacy
- Systematic reviews and meta-analyses: The gold standard of evidence synthesis. Cochrane Nutrition reviews and the Lancet Nutrition Series are the most influential. In Sudan's policy context, systematic reviews must be contextualized — a meta-analytic estimate from stable country settings may not apply to conflict-affected Sudan without careful interpretation
- Situation analyses and nutrition profiles: Synthesis of all available quantitative data on a country or state's nutrition situation, framed for a policy audience. Essential for national nutrition planning and donor engagement. Sudan state-level nutrition profiles developed by UNICEF/WFP are the primary example
- Cost-effectiveness analyses and investment cases: Translate evidence of program effectiveness into economic terms. Most influential with finance ministries and planning commissions. The 'Investment Framework for Nutrition' (Shekar et al., World Bank 2016) is the primary global template
- Real-time data dashboards: Online platforms providing regularly updated nutrition and food security data. FEWS NET, IPC, and Humanitarian Data Exchange (HDX) provide Sudan-specific dashboards accessed by donors, UN agencies, and government. Increasingly important for evidence use in fast-moving emergency contexts

Sudan Case Study: Research-Policy Interface in Sudan — Specific Challenges and Opportunities

• Sudan has a small but active nutrition research community centered at the University of Khartoum (Faculty of Public Health and Nutrition), Ahfad University for Women (nutrition program), and affiliated research institutes. This community has generated important Sudan-specific evidence but faces severe funding, infrastructure, and publication capacity constraints • The conflict has destroyed much of Sudan's institutional research infrastructure in Khartoum — libraries, laboratories, data repositories. Researchers have been displaced; ongoing studies have been suspended; doctoral programs interrupted. The long-term impact on Sudan's nutrition knowledge production capacity is severe
• International donors and UN agencies commission most nutrition assessments in Sudan — creating a situation where the evidence base about Sudan's nutrition problems is largely owned by external actors rather than Sudanese institutions. This has important implications for the ownership, relevance, and policy influence of nutrition evidence
• Opportunity: Sudan's post-conflict reconstruction planning process will require a comprehensive evidence base. Investing now in preparing systematic reviews, situation analyses, and policy briefs, drawing on Sudanese researchers in diaspora where necessary, can position evidence-based approaches at the center of reconstruction planning before political decisions are locked in
• The SUN Civil Society Network Sudan and the professional association of dietitians and nutritionists have played some advocacy role in translating evidence to policy, but have been severely constrained by funding, security, and political access. Strengthening these domestic evidence-to-policy translation actors is a high-priority, under-resourced gap

VI. DESIGNING M&E FOR FRAGILE SETTINGS — PRACTICAL PRINCIPLES

A. Adapting M&E to Sudan's Context

Standard M&E system designs developed for stable development contexts require systematic adaptation for Sudan's fragile and conflict-affected operating environment. The following principles guide context-appropriate M&E design:

M&E Design Principle	Standard Context Application	Adaptation for Conflict-Affected Sudan
Proportionality	M&E investment should be proportionate to program scale and budget, typically 5-10% of program budget	In conflict settings, M&E costs are disproportionately high due to security, access costs, TPM requirements, and remote monitoring investments. Budget 10-15% for M&E in fragile settings; document the additional costs and their justification explicitly
Simplicity	M&E systems should collect the minimum data needed to make key decisions — avoid data collection overload	In fragile settings: further simplify. Prioritize 3-5 critical indicators over comprehensive results frameworks. Use standardized global indicators (GAM, SAM, EBF, MAD) that are comparable and require no new measurement systems. Paper-based systems where digital infrastructure is unreliable
Flexibility	Build in mechanisms to revise the M&E plan as the program evolves	In conflict settings: build explicit contingency monitoring plans for scenarios of deteriorating access. Pre-specify what data collection methods will be used if primary methods become

		impossible. Adaptive M&E is not a luxury — it is a necessity
Community participation	Involve communities in M&E design and data interpretation	In conflict settings: community-based monitoring (CBM) by trained community volunteers may be the only feasible real-time monitoring mechanism. Train and support community monitors; build feedback loops that communities can see — not just data that flows upward to donors
Triangulation	Use multiple data sources to cross-check findings	In Sudan: no single data source is reliable. Triangulate: SMART survey data + CMAM program data + community informant reports + market price monitoring + satellite vegetation indices. Discordant findings signal data quality problems requiring investigation

Practical Activity: Practical Activity — Designing an M&E System for a Sudan Nutrition Program

- Scenario: You are the M&E officer for a 3-year integrated nutrition program in West Darfur state covering CMAM (OTP+SC), IYCF counselling, and micronutrient supplementation targeting 30,000 children and 15,000 pregnant/lactating women. Security conditions are classified as 'high risk' limiting field visits to 30% of program sites
- Step 1 — Results framework: Construct a results framework with 2 impact indicators, 3 outcome indicators, and 4 output indicators. For each indicator specify: baseline value (or how you will establish one), target, unit of measurement, data source, collection frequency, and responsible party
- Step 2 — Monitoring plan: Design a monitoring plan that functions under 'high risk' security conditions. Specify which monitoring activities can be conducted normally, which require modification, and which require remote/alternative approaches. What remote monitoring methods will you use and what are their limitations?
- Step 3 — Evaluation design: The donor requires a midterm and endline evaluation. Propose an appropriate evaluation design for this context. Justify your design choice against alternatives. What are the main threats to the validity of your proposed design and how will you address them?
- Step 4 — Community accountability: Design one specific community accountability mechanism for this program. Describe: how community feedback will be collected; who will collect it; how it will be analyzed; how it will be acted upon; and how communities will be informed of what action was taken
- Step 5 — Evidence use plan: Identify three key decisions that program managers will need to make in Year 2 of this program. For each decision, specify: what evidence is needed; when it is needed; in what format it should be presented; and who is responsible for producing it

Lecture Summary

- Monitoring and evaluation are distinct: monitoring tracks implementation continuously; evaluation assesses outcomes and impact periodically. Both are essential, and both are

severely compromised in Sudan's conflict context, requiring explicit documentation of limitations alongside all reported findings
• Results frameworks: balanced across input/output/outcome/impact levels; hierarchically coherent; context-appropriate. Remote monitoring methods (phone monitoring, key informant networks, TPM, remote sensing) are not equivalent to direct observation, they are necessary compromises that must be transparently described
• Evaluation design selection: driven by question, ethics, and context, not hierarchy dogma. RCTs are rarely feasible or ethical in humanitarian settings. Quasi-experimental designs (DiD, RDD) require baseline data. Pre-post designs are weak but common. Contribution analysis is recommended for complex multi-sector programs. Qualitative methods are underused and undervalued • Three accountability dimensions: upward (to donors — relatively strong); downward (to communities, very weak in Sudan); horizontal (between institutions, largely absent). SUN accountability mechanisms have functioned as legitimizing exercises rather than genuine accountability in Sudan's context
• Research-policy interface: good evidence is necessary but insufficient for policy change. Barriers include timing mismatch, communication gap, trust, political compatibility, and absorption capacity. Policy briefs, systematic reviews, investment cases, and real-time dashboards are the primary translation tools. Sudan's domestic research capacity is severely under-resourced and conflict-damaged
• M&E adaptation for fragile settings: proportionality (10-15% budget); simplicity (3-5 critical indicators); flexibility (contingency monitoring plans); community participation (community-based monitoring); triangulation (multiple data sources). Design for disruption from the outset — do not assume stable operating conditions

Suggested Reading:

1. Mayne J (2011). Contribution analysis: Addressing cause and effect. In Forss K et al. (eds.) Evaluating the Complex.
2. Habicht JP et al. (1999). Evaluation designs for adequacy, plausibility, and probability of public health program performance and impact. Int J Epidemiol.
3. Shiffman J & Smith S (2007). Generation of political priority for global health initiatives. Lancet.
4. UNICEF (2019). Program Guidance on Remote Monitoring.
5. Overseas Development Institute (2014). 10 things to know about how to influence policy with research. ODI Working Paper.

SUDAN
El Obeid
Nuba Mountains
Blue
Nile
River
White
Nile
River
ETHIOPIAN

NUDT 414 | LECTURE 6

Nutrition Advocacy, Global Governance & Sudan's Post-Conflict Future

Advocacy Strategies, Global Architecture, Climate-Nutrition Nexus & Recovery Planning

Food & Nutrition Policy Planning (NUDT 414) | 2 Credit Hours

Learning Outcomes

- Design and execute a multi-level nutrition advocacy strategy targeting different decision-maker audiences with appropriate messages and channels
- Map the global nutrition governance architecture, key institutions, financing mechanisms, and political forums, and analyze Sudan's position within it
- Explain the nutrition-climate nexus and apply climate-sensitive nutrition programming principles to Sudan's agro-ecological context
- Analyze the food environment and food systems as determinants of dietary quality, including the role of food labelling, marketing regulation, and fiscal policies
- Develop a post-conflict nutrition recovery framework for Sudan integrating emergency-to-development transition, institution rebuilding, and resilience investment
- Synthesize the full course into a coherent understanding of food and nutrition policy planning as a technical, political, and ethical practice

I. NUTRITION ADVOCACY — STRATEGY, MESSAGES, AND CHANNELS

A. What Is Nutrition Advocacy?

Nutrition advocacy is the deliberate use of evidence, communication, and political strategy to influence decision-makers, mobilize resources, and build the political commitment necessary to implement effective nutrition policies and programs. It is distinct from education (changing individual behavior) and service delivery (providing services), advocacy targets the systemic and political conditions that enable or constrain both.

Effective nutrition advocacy requires three things working together: the right evidence (credible, relevant, and accessible); the right messenger (trusted, credible, and strategically positioned); and the right moment (a policy window where decision-makers are receptive). Having all three requires sustained preparation, not just reactive response when windows briefly open.

B. The Advocacy Strategy Framework

Advocacy Strategy Component	Description	Sudan Application
Goal definition	A specific, achievable change in policy, budget, law, or practice that advocacy aims to produce within a defined timeframe. Advocacy goals must be more concrete than 'improve nutrition', they must specify what decision, by whom, by when	Goal example: Secure a budget line for nutrition within Sudan's post-conflict Federal Health Budget allocating at least 3% of health expenditure to direct nutrition interventions by 2027, as part of the post-conflict reconstruction financing framework
Target audience analysis	Identify the specific decision-maker(s) whose decision would achieve the goal. Distinguish between primary targets (who makes the decision), secondary targets (who influences the decision-maker), and gatekeepers (who controls access)	Primary: Sudan's Ministry of Finance and National Planning — controls budget allocation. Secondary: Transitional Sovereignty Council nutrition champions; international donors whose conditionalities influence domestic budget priorities; World Bank country director. Gatekeeper: Finance Minister's chief of staff and technical advisors
Message development	Develop messages that are: evidence-based; relevant to target audience's interests and priorities; concise and memorable; framed in the audience's language (economic, political, or moral depending on audience)	For Ministry of Finance: 'Malnutrition costs Sudan 2.3% of GDP annually — the investment case shows returns of 18:1 for proven interventions. Nutrition is the highest-return investment available in post-conflict reconstruction.' For community leaders: 'Our children are losing their potential. One in three Sudanese children is stunted — their brains and bodies permanently affected. This is preventable.'
Channel and tactic selection	Different audiences are reached through different channels. Select tactics that match target audience's information consumption patterns and that the advocacy organization can credibly execute	Finance Ministry: private briefings with technical nutrition economists; formal policy brief submission; joint working group participation. Civil society/communities: Arabic-language radio; community leader dialogues; social media (where accessible). International donors: conference presentations; op-eds in international development media; formal submissions to donor coordination meetings
Coalition building	Effective advocacy requires a coalition broader than the nutrition community. Nutrition advocates must build alliances with actors who have complementary interests and greater political access	Potential Sudan nutrition advocacy coalition: diaspora Sudanese medical professionals (credibility + international connections); women's rights organizations (maternal nutrition framing); economists (investment case framing); religious leaders (Islamic teaching on child welfare and care obligations); Sudanese journalists and media
Timing and opportunity	Map the policy calendar and identify advocacy windows: budget cycles, policy review processes, elections (when applicable), international conferences, anniversaries of crises	Sudan reconstruction planning: any post-conflict reconstruction conference (analogous to Brussels Conference for Syria) is a major advocacy opportunity. Annual WHA in Geneva: opportunity for Sudan's delegation to make nutrition commitments on the international record. Ramadan: historically a period of heightened attention to hunger and food security in Sudanese public discourse

C. Rights-Based Advocacy — The Right to Adequate Food

The right to adequate food is recognized in international human rights law, Article 11 of the International Covenant on Economic, Social and Cultural Rights (ICESCR), which Sudan has ratified. The right to food framework provides a powerful complementary advocacy tool to the economic and health arguments for nutrition investment:

- Right to food obligations: States have three obligations, to respect (do not deprive people of existing food access), to protect (prevent third parties from violating food rights), and to fulfill (take positive action to ensure food and nutrition security for those who cannot achieve it themselves)
- Justiciability: In some countries, the right to food has been made justiciable, enforceable through courts. India's Supreme Court has issued landmark judgments enforcing midday meals and ICDS program provision. This is not currently applicable in Sudan's context but represents a long-term advocacy direction for constitutional and legislative reform
- Monitoring bodies: Sudan's compliance with the right to food is reviewed by the UN Committee on Economic, Social and Cultural Rights (CESCR) through its Universal Periodic Review process. NGOs can submit shadow reports to these bodies, a concrete advocacy mechanism that places Sudan's nutrition failures on the international record
- The Right to Food vs. Food Security framing: Food security is a technical/development framing; food as a right is a justice/accountability framing. Different audiences respond differently, the rights framing is powerful for civil society and community advocacy; the food security framing is more familiar to technical donors and government planners. Effective advocates code-switch between frameworks

II. GLOBAL NUTRITION GOVERNANCE ARCHITECTURE

A. The Landscape of Global Nutrition Institutions

Global nutrition governance is characterized by fragmentation, multiple institutions with overlapping mandates, competing financing streams, and no single coordinating authority. Understanding this landscape is essential for Sudan to navigate and leverage international nutrition support effectively:

Institution / Mechanism	Mandate & Role	Sudan Relevance
UN Committee on World Food Security (CFS)	Intergovernmental body (FAO-hosted) providing global platform for food security and nutrition policy convergence. Produces voluntary guidelines adopted by governments. Most inclusive global food governance body — includes civil society and private sector	CFS Voluntary Guidelines on the Right to Food; Principles for Responsible Investment in Agriculture; CFS reports on nutrition. Sudan participates as a member state; civil society can engage through CFS Civil Society Mechanism
UN Standing Committee on Nutrition (UNSCN)	Coordinates UN system positions on nutrition. Produces the Global Nutrition Report (annual). Forum for UN agency nutrition coordination, WHO, FAO, UNICEF, WFP, World Bank, IFAD	Annual Global Nutrition Report tracks country progress against WHA targets including Sudan. UNSCN coordinates UN nutrition positions that guide Sudan's international engagement
World Health Assembly (WHA)	Governing body of WHO, 194 member states. Sets global health and nutrition targets; adopts resolutions. WHA resolutions create normative commitments with political weight	WHA Global Nutrition Targets 2025; WHA resolution on marketing of foods to children; breastfeeding protection resolutions. Sudan as WHA member is

		bound by adopted resolutions — these become reference points for accountability
Scaling Up Nutrition (SUN) Movement	Multi-stakeholder movement supporting 63+ countries to develop and implement national nutrition plans. Provides peer learning, technical assistance, and advocacy support. Not a donor, a coordination and accountability mechanism	Sudan joined SUN in 2012. SUN membership provides access to technical assistance, peer review, and international legitimacy. SUN Civil Society Network Sudan is an important domestic advocacy actor. Sudan's SUN engagement has been heavily disrupted since 2021
Nutrition for Growth (N4G) Initiative	High-level political process generating country and donor commitments to nutrition investment. Held in London 2013, Rio 2016, Tokyo 2021, Paris 2025. Creates accountability through public commitment tracking	N4G Paris 2025 is a major upcoming advocacy opportunity for Sudan's post-conflict reconstruction. Sudan can leverage N4G to secure donor commitments to long-term nutrition financing tied to reconstruction. Past Sudan N4G commitments are on public record, undelivered commitments can be used as advocacy material
Global Financing Facility (GFF)	World Bank-hosted financing mechanism supporting reproductive, maternal, newborn, child, and adolescent health and nutrition in 36 LMIC countries. Provides grants and technical support for investment cases and health financing reform	GFF is a potential Sudan financing mechanism for post-conflict health and nutrition reconstruction, requires functional government counterpart, investment case development, and World Bank country re-engagement (conditional on political normalization)
GAVI, the Vaccine Alliance / Global Fund	GAVI: supports immunization (relevant to nutrition through vitamin A delivery via vaccination platforms). Global Fund: HIV, TB, malaria, cross-cutting nutrition implications	GAVI partners with UNICEF and governments for vitamin A supplementation delivery alongside vaccination campaigns in Sudan. Global Fund's malaria programming is directly relevant to Sudan's nutrition situation — malaria is a major driver of wasting through fever, anorexia, and nutrient losses

III. THE NUTRITION-CLIMATE NEXUS

A. How Climate Change Threatens Nutrition Security

Climate change is the most severe long-term structural threat to nutrition security in Sudan and across the Sahel. Sudan is ranked among the world's most climate-vulnerable countries, simultaneously experiencing: increased frequency and severity of droughts; increased flooding along Nile tributaries; expanding desertification and land degradation; and increased temperature stress on staple crops. All four directly affect nutrition through multiple pathways:

Climate Pathway	Nutrition Impact Mechanism	Sudan-Specific Evidence
Reduced agricultural production	Drought and erratic rainfall reduce sorghum, millet, and sesame yields — Sudan's primary staple crops. Harvest failure = immediate food insecurity = increased acute malnutrition	Sudan is classified as having 'high climate exposure' in all major climate vulnerability indices. Sorghum production is highly rainfall-dependent; a 1°C temperature increase is projected to reduce sorghum yields by 5-10% in Sudan's arid zones. Recurrent droughts in Darfur and Kordofan have driven repeated emergency nutrition crises
Livestock losses	Drought depletes water and pasture; heat stress reduces livestock productivity and reproduction. Pastoral communities in Sudan (an estimated 20-30% of population) depend on livestock for food, income, and social capital	Sudan's 2022-2023 drought in Red Sea and Kassala states caused mass livestock mortality — directly eliminating both income and food sources for pastoralist families. Livestock loss is one of the strongest predictors of acute malnutrition in pastoralist Sudan communities
Increased infectious disease burden	Higher temperatures and altered rainfall patterns expand malaria and diarrheal disease burden. Infection drives acute malnutrition through anorexia, malabsorption, and increased nutrient losses	Malaria transmission is expanding into higher altitude areas as temperatures rise. In Sudan, malaria is endemic across most of the country — climate-driven increases in malaria burden will directly worsen wasting rates
Nutritional quality of crops	Rising CO2 reduces protein, zinc, and iron content of staple grains (documented in wheat and rice; likely similar for sorghum and millet). The 'hidden hunger' crisis worsens	Research (Myers et al., Nature 2014): wheat protein content decreased by 6-13% at elevated CO2 concentrations projected for 2050. For populations dependent on cereal as their primary protein source — as in Sudan — this is a significant but largely unrecognized nutritional threat
Displacement and conflict	Climate shocks (drought, flood) drive displacement, increase competition for resources, and have been identified as conflict drivers. Conflict is the most powerful proximal driver of famine	The connection between climate shocks, resource competition, and armed conflict in Sudan's Darfur and Kordofan regions has been extensively documented. The 2003-2008 Darfur conflict was partly driven by drought-induced resource competition — a dynamic likely to intensify with climate change

B. Climate-Sensitive Nutrition Programming

Climate-sensitive nutrition programming explicitly integrates climate risk into program design, targeting, and implementation. It asks: how will climate shocks affect this program's nutrition outcomes, and how can we design the program to be resilient? Key principles:

- Climate-informed geographic targeting: Overlay nutrition vulnerability maps with climate risk maps (drought probability, flood risk, temperature stress) to identify populations facing compounded climate-nutrition risk. In Sudan, Darfur, Kordofan, and the Sahel belt face the highest compound risk
- Lean season programming: Nutrition interventions must be timed to the agricultural and pastoral calendar. In Sudan, the lean season (June-September, pre-harvest, coinciding with the rainy season) is the period of maximum food insecurity and peak acute malnutrition. CMAM and BSFP programs must scale up before and during the lean season — not in response to it after caseloads have already surged
- Disaster risk reduction (DRR) integration: Nutrition programs should incorporate community-level DRR activities, water harvesting, drought-resistant crop varieties, early warning system participation, as protective measures that reduce the nutrition impact of climate shocks
- Climate-resilient livelihoods: Post-conflict nutrition recovery in Sudan must prioritize climate-resilient livelihoods: drought-tolerant crop varieties (sorghum ICRISAT improved varieties); water harvesting and small-scale irrigation; pastoral route protection and livestock disease management; diversification into off-farm income to reduce climate exposure
- Nutrition-sensitive climate finance: Climate finance mechanisms (Green Climate Fund, Adaptation Fund) can fund nutrition-sensitive agriculture and food systems work. Sudan's post-conflict reconstruction should develop climate finance proposals that integrate nutrition objectives, an underexploited financing opportunity

Sudan Context: *Sudan's INDC (Intended Nationally Determined Contribution) to the Paris Agreement identifies food security and agriculture as priority adaptation sectors. Sudan's post-conflict reconstruction presents a unique opportunity to redesign agriculture and food systems with both climate resilience and nutrition security as explicit co-objectives — breaking the historical pattern of treating these as separate policy domains.*

IV. FOOD ENVIRONMENT AND FOOD SYSTEMS POLICY

A. The Food Environment as a Determinant of Dietary Quality

The food environment, the physical, economic, political, and socio-cultural context in which consumers engage with the food system, is increasingly recognized as a powerful determinant of dietary quality. What people eat is not simply a matter of individual choice; it is profoundly shaped by what is available, affordable, convenient, marketed, and culturally acceptable in their food environment. Sudan is experiencing rapid food environment transformation, with nutrition consequences:

Food Environment Dimension	Description	Sudan Context
Physical availability	What foods are available in local markets, shops, and food outlets	Rapid growth of processed food retail in Khartoum and major cities. Traditional markets still dominant in rural areas and small towns. Conflict has destroyed market systems in many states, reducing availability of nutritious foods (fresh produce, animal source foods) and increasing dependence on shelf-stable processed foods
Economic access	What foods are affordable given household income	Hyperinflation 2021-2023 (>300%) dramatically reduced the purchasing power of urban households. The relative price of nutritious foods (vegetables, meat, eggs, dairy) has increased faster than staples, worsening dietary quality even when calories are nominally accessible. The poorest households have been pushed into monotonous cereal-based diets
Food marketing environment	How food products are promoted and marketed. particularly to children	Aggressive marketing of ultra-processed foods (biscuits, sugary beverages, instant noodles, flavored chips) in urban Sudan, including through social media platforms accessible on mobile phones. No regulatory framework for marketing unhealthy foods to children exists in Sudan. Breast milk substitute marketing violations documented in humanitarian settings
Food labelling	Information available on food products to support informed consumer choice	Sudan has no mandatory front-of-pack nutrition labelling system. Most processed foods sold in Sudan carry minimal nutrition information. Imported products carry labels in foreign languages inaccessible to most Sudanese consumers. A national labelling policy is an unaddressed regulatory gap
Cultural and social norms	What foods are considered appropriate, prestigious, or taboo	Traditional Sudanese diet (asida sorghum porridge, ful medames, meat on special occasions) is nutritionally adequate when food security exists. Urbanization and income growth are driving shift toward ultra-processed foods associated with modernity and aspiration. Colostrum discarding remains practiced in some communities, a harmful traditional practice with major IYCF implications

B. Policy Instruments for Healthier Food Environments

A range of policy instruments can improve food environments. Sudan's post-conflict reconstruction planning should include a food environment policy package alongside direct nutrition interventions:

- Fiscal policies, taxes and subsidies: Sugar-sweetened beverage (SSB) taxes reduce consumption and generate revenue for nutrition programs. Mexico's SSB tax (2014): 10% tax produced 6% reduction in SSB sales; USD 1.4 billion in revenue. Several African countries (South Africa, Kenya) have adopted SSB taxes. Sudan's post-conflict reconstruction creates a policy window to introduce SSB taxation as part of broader fiscal reform. Conversely, subsidizing nutritious foods (vegetables, legumes, fortified foods) can improve affordability
- Food fortification: Mandatory fortification of staple foods is the most cost-effective population-level micronutrient intervention. Sudan has policies for iodized salt and wheat flour fortification (iron, folic acid) but implementation and enforcement are inconsistent. Post-conflict reconstruction of the food industry creates an opportunity to mandate and enforce fortification standards as a condition of market re-entry
- Marketing regulation: WHO's International Code of Marketing of Breast-milk Substitutes (1981), ratified by Sudan, prohibits promotion of formula, bottles, and teats. Violations are documented in humanitarian settings. A broader regulation on marketing unhealthy foods to children (following WHO nutrient profile model) is a legislative gap requiring attention
- School food environments: School feeding programs shape children's food habits. Policy should specify nutritional standards for school meals and canteen food; prohibit sales of SSBs and ultra-processed snacks on school premises; integrate nutrition education into school curricula. WFP's school feeding program in Sudan can serve as a platform for healthier school food environment standards
- Food labelling policy: Mandatory front-of-pack nutrition labelling (traffic light system or warning labels, as in Chile, Mexico, and increasingly across Africa) enables informed consumer choice and incentivizes food industry reformulation. Should be included in Sudan's post-conflict food regulatory reform agenda

V. SUDAN'S POST-CONFLICT NUTRITION RECOVERY FRAMEWORK

A. The Humanitarian-Development-Peace Nexus

Sudan's nutrition recovery will not follow a clean linear transition from emergency response to development programming. The Humanitarian-Development-Peace (HDP) Nexus framework, adopted by the UN and major donors, recognizes that in protracted crises, humanitarian, development, and peace-building responses must operate simultaneously and reinforce each other:

Nexus Dimension	Core Principle	Application to Sudan Nutrition Recovery
Humanitarian	Immediate life-saving response to acute needs; principled (humanity, neutrality, impartiality, independence); needs-based not politics-based	CMAM at scale for SAM; BSFP in IPC Phase 3+ areas; emergency food assistance; nutrition in health cluster response. Must be sustained wherever IPC Phase 3+ conditions persist — likely for years in conflict-affected states even after ceasefire
Development	Building systems, institutions, and capacities for long-term nutrition security; nationally owned; aligned with government plans and systems; addressing root causes	Reconstruct health system (building blocks); rebuild HMIS and surveillance; develop new MSNP with multi-sector coordination; build government nutrition financing capacity; restore agricultural production; invest in WASH infrastructure. Begins wherever governance space permits, even before full national ceasefire
Peace	Addressing the structural drivers of conflict that create nutrition vulnerability; supporting social cohesion; conflict-sensitive programming; supporting transitional justice	Address resource competition (land, water, pasture) as a conflict driver with nutritional consequences; support community reconciliation that enables market re-integration; ensure nutrition programming is conflict-sensitive and does not reinforce community divisions

B. Post-Conflict Nutrition Recovery — A Sequenced Framework for Sudan

Sudan's post-conflict nutrition recovery will need to be sequenced to match evolving governance capacity, security conditions, and resource availability. A three-phase framework provides a planning structure, though in practice phases will overlap and vary by state:

Phase	Timeline (Indicative)	Priority Actions	Key Actors
Phase 1 Stabilization	0-18 months post-ceasefire	Scale up life-saving nutrition interventions (CMAM, BSFP, micronutrient supplementation) in all accessible areas. Rapid nutrition situation assessment (SMART surveys, IPC update). Establish temporary coordination mechanisms. Emergency restoration of critical supply chains (RUTF, essential medicines). Protection of nutrition staff and assets. Community-based nutrition screening and referral	UNICEF, WFP, WHO, INGOs, Sudanese Red Crescent, NNP (where functional)

Phase 2 Restoration	12-48 months post-ceasefire	Restore health system functionality for nutrition service delivery. Rebuild HMIS and nutrition surveillance. Develop new MSNP with multi-stakeholder process. Establish domestic nutrition budget line. Restore agricultural production and market systems. Rebuild community nutrition infrastructure (CNV networks, GMP systems). Begin nutrition-sensitive social protection system reconstruction. Engage diaspora health professionals for workforce restoration	FMoH NNP, state Ministries of Health, UNICEF, WFP, WHO, World Bank, bilateral donors, SUN secretariat
Phase 3 Resilience	36-84 months post-ceasefire	Achieve nationally owned, sustainably financed nutrition system. Full MSNP implementation with government co-financing. Climate-resilient food systems and agriculture. Food environment policy package (fortification, SSB tax, labelling, marketing regulation). Universal health coverage with nutrition integrated. Community-led nutrition governance. Functional accountability mechanisms. Graduation of emergency response modalities	FMoH, multi-sector government, domestic civil society, private sector, residual UN/donor support

Sudan Case Study: Priorities for Sudan's Nutrition Recovery — An Evidence-Based Agenda

- Priority 1 — End the famine: Secure unimpeded humanitarian access to all IPC Phase 4-5 populations as an absolute precondition. No nutrition recovery is possible when people are actively dying of starvation. This requires political solutions, not technical ones, ceasefire, humanitarian access negotiations, international pressure on all parties
- Priority 2 — Protect and rebuild human capital: The generation of children affected by Sudan's 2023-2024 crisis will carry the cognitive and physical effects of severe acute malnutrition, stunting, and trauma for their lifetimes. Investing now in SAM treatment scale-up is not emergency response — it is an investment in Sudan's post-conflict human capital
- Priority 3 — Redesign, do not just restore: The pre-conflict nutrition system was failing — 38.6% stunting, 13.9% wasting, 90%+ donor financing, no functional accountability. Reconstruction is an opportunity to build a fundamentally better system, not merely to restore the inadequate one that existed before April 2023
- Priority 4 — Center Sudanese leadership: The most important long-term determinant of nutrition outcome improvement in Sudan is Sudanese institutional capacity and political ownership. International actors must support, not substitute. Investing in Sudanese nutrition professionals, research institutions, civil society organizations, and government systems is the highest-priority structural investment
- Priority 5 — Address climate and conflict as co-equal nutrition risks: Sudan cannot achieve nutrition security without addressing the structural drivers of food insecurity, political instability and climate vulnerability. Nutrition recovery planning must be integrated into peace-building architecture and climate adaptation planning. A nutrition recovery plan that ignores these drivers is not a plan for recovery, it is a plan for the next crisis

VI. COURSE SYNTHESIS — FOOD AND NUTRITION POLICY AS THEORY AND PRACTICE

A. Integrating the Six Lectures

Across this course, we have moved from foundational concepts to practical tools, from global frameworks to Sudan's specific reality. The following synthesis maps how the course's core themes connect:

Course Theme	Lecture Reference	Core Insight for Practice
Policy is political, not just technical	L1: Frameworks; L4: Political economy	The best policy document is worthless without political will, resource allocation, and actor alignment. Nutrition practitioners must be political analysts and advocates, not just technical experts
Evidence is necessary but insufficient	L2: Quantitative assessment; L5: Evidence use	Sudan's 10+ year data gap is itself a policy failure. Evidence must be: generated, synthesized, communicated, timed, and politically framed to influence decisions. Invest equally in evidence generation and evidence translation
Design determines impact	L3: Planning tools; L4: Coverage framework	Theory of Change assumptions are where programs fail. LogFrame indicators determine what gets measured and managed. Coverage cascade analysis diagnoses where services are lost before they reach people
Implementation is where policies become real	L4: Implementation gap; L6: Recovery framework	The gap between policy intent and implementation reality is the defining challenge of nutrition governance. Health system building blocks must function; political economy must be understood and navigated; conflict sensitivity is non-negotiable in Sudan
Accountability is everyone's responsibility	L5: Accountability frameworks	Upward accountability to donors is well-developed; downward accountability to communities is the most neglected gap. The test of accountability is whether communities can meaningfully influence the services they receive
Sudan is the hardest possible test case	All lectures	Sudan combines every governance challenge simultaneously: conflict, fragility, climate vulnerability, economic collapse, donor dependency, and a double burden of malnutrition. If nutrition policy can work here — with the right frameworks, evidence, politics, and persistence — it can work anywhere

B. The Nutrition Policy Practitioner's Toolkit — Summary

A competent nutrition policy practitioner leaving this course should have command of the following toolkit:

Analysis Tools

- Policy Actor Mapping / Stakeholder Analysis: mapping power, interests, and positions
- WHO Policy Triangle: content, context, process, and actors — analyzing all four simultaneously
- Kingdon's Multiple Streams: identifying and seizing policy windows
- UNICEF Conceptual Framework: diagnosing immediate, underlying, and structural causes
- Political Economy Analysis: interests, institutions, ideas, power, and incentives

Quantitative Methods

- Nutrition indicator selection and interpretation: anthropometric z-scores, MUAC, IYCF indicators, food security scores

- SMART survey interpretation: ENA plausibility checks, IPC phase classification
- DALY and PAF methodology: quantifying nutrition's disease burden and attribution
- Cost of Hunger and ROI analysis: economic costing and investment cases

Planning and Design Tools

- Theory of Change development: causal pathways, assumptions, and risk mitigation
- LogFrame construction: SMART indicators, means of verification, assumptions
- Program costing: ingredient, normative, and financial absorption approaches
- National Nutrition Plan design: situation analysis, targets, interventions, financing, M&E

Implementation and M&E Tools

- Coverage cascade and bottleneck analysis: diagnosing where coverage is lost
- Three-Delay Model: understanding demand-side and supply-side barriers
- Results framework design: balanced across all results levels
- Remote monitoring adaptation: context-appropriate M&E for fragile settings
- Contribution analysis: evaluating complex multi-sector programs

Advocacy and Communication Tools

- Advocacy strategy framework: goal, target, message, channel, coalition, timing
- Policy brief development: translating evidence for non-technical audiences
- Rights-based advocacy: right to adequate food as a complementary frame
- HDP Nexus planning: sequenced recovery framework for fragile states

Practical Activity: Final Course Activity — Nutrition Policy Brief for Sudan's Post-Conflict Recovery

- This is the capstone exercise for NUDT 414. You will produce a 1,500-word policy brief on ONE specific nutrition policy priority for Sudan's post-conflict reconstruction, drawing on all six lectures
- Structure your policy brief as follows:
- Section 1 — The Problem (250 words): Define the specific nutrition problem using quantitative evidence. Apply the UNICEF framework to identify its causes at all three levels. Quantify the economic cost using available data
- Section 2 — The Policy Context (250 words): Apply the WHO Policy Triangle — analyse the content of existing policy, the political and economic context, the process that produced it, and the key actors. Apply Kingdon's Multiple Streams to identify whether a policy window currently exists or is likely to open
- Section 3 — The Evidence Base (300 words): Summarize the evidence for your proposed intervention. What is the benefit-cost ratio? What does the systematic review evidence show? What are the key uncertainties? What Sudan-specific evidence exists?
- Section 4 — The Policy Recommendation (400 words): Make a specific, actionable policy recommendation. What decision do you want made, by whom, by when? Present the recommendation in language appropriate for a senior government official. Include: estimated cost; implementation requirements; proposed M&E framework (3 key indicators); key risks and mitigation strategies
- Section 5 — The Advocacy Strategy (300 words): Who is your primary target for this policy brief? What is your key message for them? What advocacy channel will you use to reach them? Who are your most important coalition allies?

• Formatting: Maximum 1,500 words excluding references; use headings; include 1 data table or figure; cite at least 6 sources. Brief must be written for a non-specialist senior policy audience — no jargon without explanation

Lecture Summary — Integrating the Course
• Advocacy is the bridge between evidence and policy change. Effective nutrition advocacy requires: a specific goal; deep understanding of the target decision-maker; messages framed in their language and interests; trusted messengers; and strategic timing aligned with policy windows. Rights-based and economic advocacy frames are complementary, effective advocates use both
• Global nutrition governance is fragmented across CFS, UNSCN, WHA, SUN, N4G, and multiple financing mechanisms. Sudan must navigate this landscape strategically — using international commitments as domestic accountability tools and international forums as platforms for securing post-conflict reconstruction financing
• Climate change is Sudan's most severe long-term structural nutrition threat: through reduced agricultural production, livestock losses, increased infectious disease burden, reduced crop nutritional quality, and conflict-driving resource competition. Climate-sensitive nutrition programming and climate finance for food systems are priority gaps for Sudan's recovery agenda • The food environment shapes what people eat as powerfully as individual knowledge and preferences. Policy instruments, SSB taxes, mandatory fortification, marketing regulation, school food standards, front-of-pack labelling — constitute an under-utilized policy toolkit for dietary quality improvement that Sudan's post-conflict reconstruction should incorporate • Sudan's post-conflict nutrition recovery requires a sequenced HDP Nexus approach: Phase 1 stabilization (end famine, scale CMAM/BSFP); Phase 2 restoration (rebuild health system, surveillance, MSNP, social protection); Phase 3 resilience (national ownership, domestic financing, climate-resilient food systems, functional accountability). The opportunity is to build better — not just to restore the inadequate pre-conflict system • The nutrition policy practitioner's toolkit, analysis, quantitative methods, planning, implementation, M&E, advocacy — is meaningless without the political understanding, ethical commitment, and persistence to apply it in the face of governance failure, resource constraints, and human crisis. Sudan is the hardest test. Meeting it requires the full integration of technical competence and political courage

Suggested Reading:

1. Shiffman J & Smith S (2007). Generation of political priority for global health initiatives. Lancet 370:1370-1379.
2. Bryce J et al. (2008). Countdown to 2015: tracking intervention coverage for child survival. Lancet. | IPCC (2022). Climate Change 2022: Impacts, Adaptation and Vulnerability, Chapter 5: Food, Fibre and Other Ecosystem Products.
3. Hawkes C et al. (2015). Smart food policies for obesity prevention. Lancet 385:2410-2421.
4. Devereux S et al. (2020). Famine in the 21st century. IDS Working Paper.
5. UN OCHA (2024). Sudan Humanitarian Response Plan 2024.
6. Global Nutrition Report (2023). Country Nutrition Profiles, Sudan.

FOOD & NUTRITION POLICY & PLANNING

NUDT 414 | Lecture Series Reader | Six Lectures

School of Health Sciences | Ahfad University for Women | 2026

ABOUT THIS READER

This Reader is the primary instructional resource for NUDT 414 — Food and Nutrition Policy & Planning, a two-credit-hour course offered by the School of Health Sciences at Ahfad University for Women. It presents six integrated lectures that take students from foundational policy concepts through quantitative assessment, program design, implementation, monitoring and evaluation, and advocacy — with Sudan's nutrition crisis as the sustained frame of reference throughout.

Each lecture is built on internationally recognized analytical frameworks — the WHO Policy Triangle, Kingdon's Multiple Streams, the UNICEF Conceptual Framework, Logical Framework Analysis, Theory of Change, IPC Classification, and Results-Based Management — and grounds every framework in Sudan-specific data, policy history, and humanitarian context. The Reader is designed to develop students who can analyze nutrition policy, design evidence-based programs, navigate political economy, and advocate effectively for nutrition investment in complex and resource-limited settings.

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***Professor Salih** holds academic expertise in nutrition science, public health policy, and program design. He has led curriculum development, research initiatives, and nutrition policy advisory work across Sudan's health and education sectors for over two decades.*

He founded and leads the Nutrition Center for Training & Research (NHCTR), Sudan's only Nutrition Research Center composed exclusively of nutrition and public health specialists, established in January 2010 at AUW

He founded and leads the Together for Sustainable Nutrition (TSN), Sudan's only civil society organization composed exclusively of nutrition and public health specialists, established in December 2025 with a membership spanning clinical nutrition, emergency nutrition, food security, and food sciences.

His work bridges academic scholarship, policy advocacy, and humanitarian programming — with a sustained focus on Sudan's most vulnerable populations: women, children, and conflict-affected communities.

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